

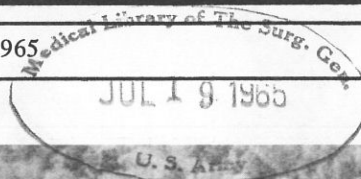
UNITED STATES NAVY

Medical News Letter

Vol. 46

Friday, 9 July 1965

No. 1



CONTENTS

Surgeon General Inspects Agnano ----- ii

FEATURE ARTICLE

Buffered Saline—Management of the Injured ----- 1

MEDICAL ARTICLES

Director of Medical Education ----- 6

Complex Closed Fracture ----- 9

DENTAL SECTION

Human Intrapulpal Pressure—Response to Clinical Variables ----- 10

Pulp Reactions ----- 10

Early Carcinoma of the Lip ----- 11

Personnel and Professional Notes ----- 12

EDITORIAL DESK

Medical Aspects of Advanced Warfare ----- 14

Nurse Corps Anniversary ----- 14

Letter of Appreciation ----- 15

Submarine Medicine Course—USNR Awards—NRDL ----- 15

Award—Dr. Howard T. Karsner ----- 16

FROM THE NOTEBOOK

Medical Examination Appraisal ----- 18

Consultant Visits USNH, Yokosuka ----- 21

BUMED NOTICE 6250 ----- 21

Space Medicine Meeting ----- 21

Hospital Accreditation Survey ----- 22

Chloramphenicol ----- 22

PREVENTIVE MEDICINE SECTION

Smallpox—U.S.A. ----- 23

Rubella Virus ----- 23

Straw Itch Mite Dermatitis ----- 24

Asthma—New Orleans ----- 24

Vaccination—Chagas Disease ----- 25

Snakes of Taiwan ----- 26

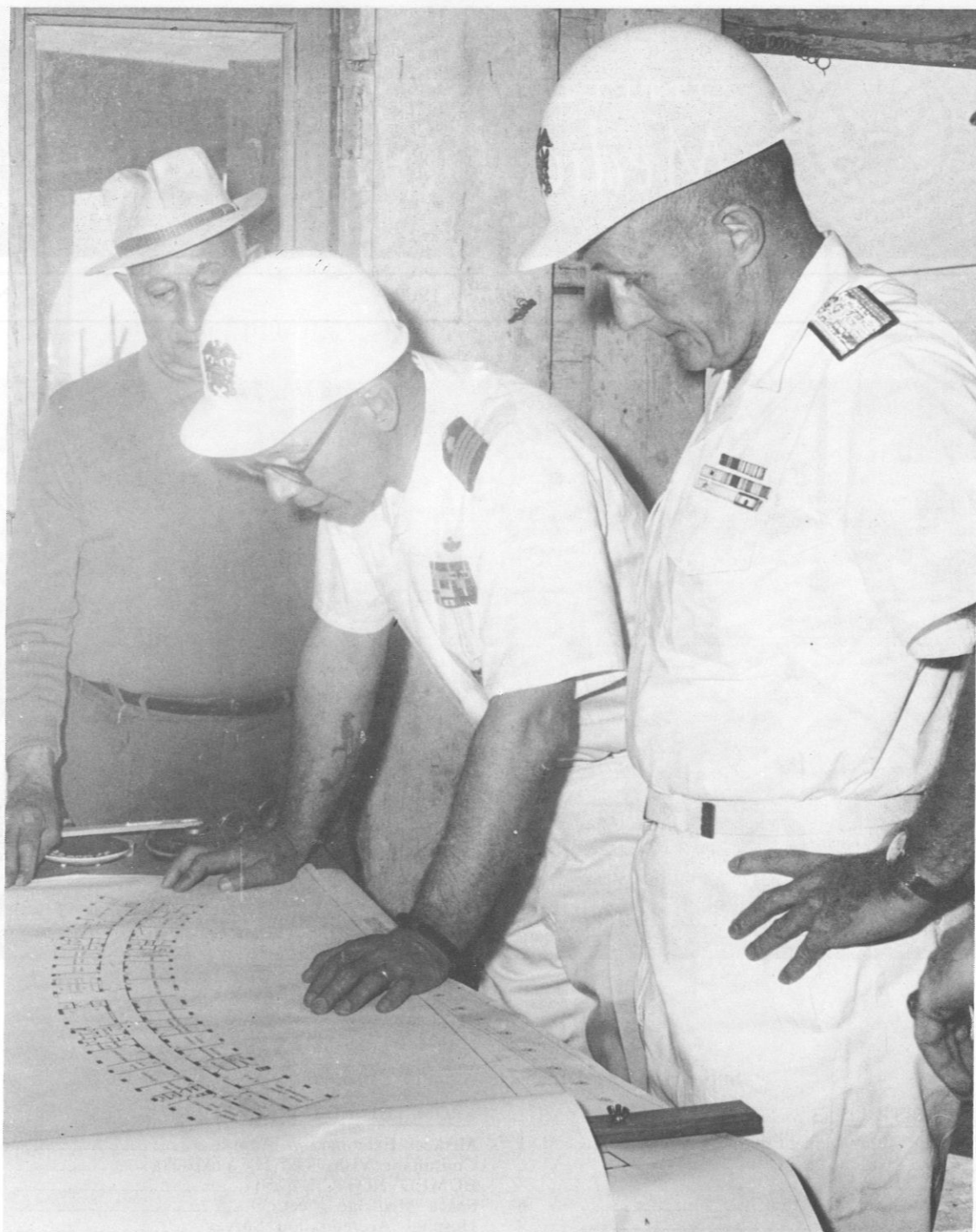
Health Problems of Mongolia ----- 26

Control of Aquatic Weeds—Florida Canals ----- 27

Milker's Nodules ----- 28

New Type of Accident ----- 28

Bat Rabies ----- 28



On the Spot Inspection—RADM Robert B. Brown, MC USN, (right), while on an inspection tour, looked over plans of the new Navy Hospital under construction at Agnano, Italy. To the left is CAPT Richard Lawrence, Jr., Senior Medical Officer, Station Hospital, Agnano. An unidentified civilian looks on. Admiral Brown visited naval facilities in Europe before attending the SHAPE Medical Conference in Paris.

United States Navy
MEDICAL NEWS LETTER

Vol. 46

Friday, 9 July 1965

No. 1

Rear Admiral Robert B. Brown MC USN
Surgeon General

Rear Admiral R. O. Canada MC USN
Deputy Surgeon General

Captain F. R. Petiprin MSC USN, Editor (Acting)

William A. Kline, Managing Editor

Contributing Editors

Aviation Medicine	Captain C. E. Wilbur MC USN
Dental Section	Captain C. A. Ostrom DC USN
Occupational Medicine	CDR N. E. Rosenwinkel MC USN
Preventive Medicine	Captain J. W. Millar MC USN
Radiation Medicine	Captain J. H. Schulte MC USN
Reserve Section	Captain C. Cummings MC USNR
Submarine Medicine	Captain J. H. Schulte MC USN

Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, sus-

ceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

FRONT COVER: Aerial view of the U. S. Naval Hospital, Jacksonville, Florida, taken from an altitude of 800 feet.

Located on Mustin Road in the southwestern section of the U. S. Naval Air Station. The grounds are ideally located for hospital purposes.

Built in 1941 and commissioned 1 July 1941, the Hospital doubled its size in 1943 with the addition of 7 new wards. The bed capacity has increased from 180 in 1950 to a peak of 1,176 in 1946. Its present census is 750.

The Hospital proper is within 200 yards of the St. John's River, which can be viewed through large oak, pine, bay, and magnolia trees, left undisturbed by the construction of the hospital buildings, thereby providing a fitting nautical setting. In addition, the location, which is somewhat removed from the main portion of the Air Station, provides a quiet and restful atmosphere for patients.

In FY65 a new permanent multi-story replacement hospital was authorized, and funds in the amount of \$7,150,000 were appropriated for its construction. The new building will replace the present temporary war-time buildings. Occupancy of the new facility is anticipated in 1967.

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

U.S. NAVY MEDICAL NEWS LETTER

FEATURE ARTICLE

THE USE OF BUFFERED SALINE IN THE MANAGEMENT OF THE INJURED

Dr. Tom Shires, Professor and Chairman of the Department of Surgery, University of Texas, Southwestern Medical School, Dallas, Texas.

The role of cardiac output, blood volume and peripheral resistance in hemorrhagic shock has been well studied. Changes in the extracellular and intracellular fluid volumes, invoked by hemorrhagic shock, have received relatively little attention. The larger portion of the extracellular fluid is the interstitial fluid which lies in an inaccessible area for analysis. This interstitial fluid is surrounded on each side by membranes which have functional integrity. These consist of the capillary membrane on one side and the cell membrane on the other. Consequently, all attempts at measurement of the function of the extracellular fluid in the in-vivo state have been confined to indirect methods. It is probably for this reason that the functional extravascular extracellular fluid has received so little attention until the quite recent past.

Several investigators have offered indirect evidence that the extracellular fluid plays an important role in hemorrhagic shock. Wiggers¹⁸ noted that, in animals that do not survive following hemorrhagic shock, hemoconcentration recurs even though shed blood is returned. The surviving animals do not redevelop hemoconcentration. Gilman⁵ has demonstrated that extracellular fluid deficient animals are markedly sensitive to small hemorrhage. Reynolds¹¹ has shown that dogs treated with saline alone demonstrate good survival with return of cardiac output and, even though complete blood replacement was not achieved, normal tissue oxygenation was accomplished. Early studies by Rosenthal and Tabor¹² demonstrated that the majority of animals subjected to hemorrhagic shock will survive if treated with an isotonic salt solution amounting to 10 to 15 percent of their body weight.

We have been interested for several years in the reactions and responses of the extravascular as well as the intravascular portion of the extracellular fluid (ECF) particularly as it responds to the challenge imposed by shock.

It was felt that a combination of isotope dilution techniques should be developed which would allow some rapid measurement of simultaneous variables. Radioactive iodinated 131 serum albumin is frequently used to measure the plasma volume.^{1,4,9,17} Similarly, the tagging of erythrocytes with chromium-51 has proved an efficient and rapid method of measuring the total red cell mass in the body.^{2,6,7,8}

Consequently, reports from this laboratory have described the method of simultaneous measurement of plasma volume, extracellular fluid volume and red cell mass in splenectomized animals and in man.^{14,15} This method consisted of the use of sulfur-35 labeled sodium sulfate for extracellular fluid volume, 131 -labeled serum albumin for plasma volume and chromium-51 tagged red blood cells for red blood cell mass. These isotopes were injected simultaneously by the intravenous route. By the use of the combination of energy differentiating counting instruments, all three isotopes could be determined in a single sample after equilibration. The volumes were then determined by the dilution principle.

Previous studies have been reported showing that the isotopes used will accurately measure these three spaces.^{10,11} Further, repeated sampling during equilibration in hemorrhagic shock has shown the equilibration time of the three isotopes used is not significantly different in the control and shock animals.¹⁶

In control animals, extracellular fluid volume, red cell mass and plasma volume were determined and repeated after two hours of light pentobarbital anesthesia. The resultant error of the reinjection technique was acceptable.¹⁴ It was also found that anesthesia alone caused no changes in the three volumes determined.

In a previous study (Fig. 1) the three spaces were measured; the dogs were then bled a sublethal subshock hemorrhage of 10 percent of the measured blood volume. Two hours posthemorrhage, the three spaces were again measured. The measured loss of

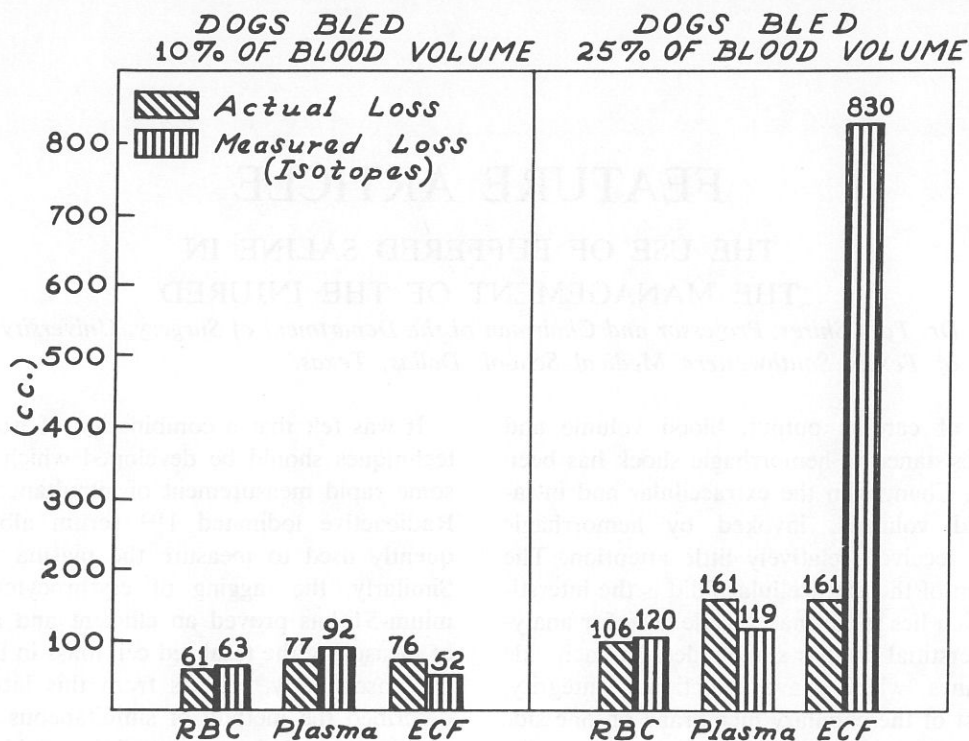


Fig. 1. Reduction in Blood and ECF in Hemorrhagic Shock.

red cells and plasma, removed during the hemorrhage, could be detected by the method used. It was also shown that the decrease in ECF volume was only that which was lost as plasma removed during the hemorrhage.

Using the same model, spaces were measured before and after hemorrhage of 25 percent of the measured blood volume.¹⁴ (Fig. 1) This hemorrhage was again sublethal but did produce hypotension. It was shown in this group of animals that the loss of red cells and plasma can be measured by the method. In addition, however, the functional ECF volume as measured by the sulfur-35 tagged sodium sulfate space decreased by 18 to 26 percent of the original volume. Since there was no measurable external loss of S³⁵-tagged SO₄, this reduction is presumed to be an internal redistribution of ECF.

In a subsequent study,¹⁶ using splenectomized dogs, three groups were subjected to "irreversible" hemorrhage shock according to the modified method of Wiggers. This preparation was employed to obtain a standard survival study. To avoid jeopardizing the survival study by multiple sampling and ureteral catheterization, volumes were measured in a separate but parallel group.

In the first group of animals, the functional extracellular fluid volume, plasma volume and red blood cell mass were measured. Dogs were then subjected to shock. The three spaces were remeasured by reinjection during the period of shock. The animals then received fluid replacement consisting of lactated Ringer's solution equal to 5 percent of body weight, plus shed blood; donor plasma (10cc/kg.) plus shed blood, or shed blood alone. One hour after completion of treatment, the spaces were measured for the third time.

The marked difference in volumes measured in these three groups of dogs is seen in the functional ECF fluid. (Fig. 2) Dogs treated with lactated Ringer's solution plus shed blood exhibited return of ECF volume to control levels. This is contrasted to the 30 percent deficit remaining after treatment with plasma plus shed blood and the 28 percent deficit after treatment with shed blood alone.

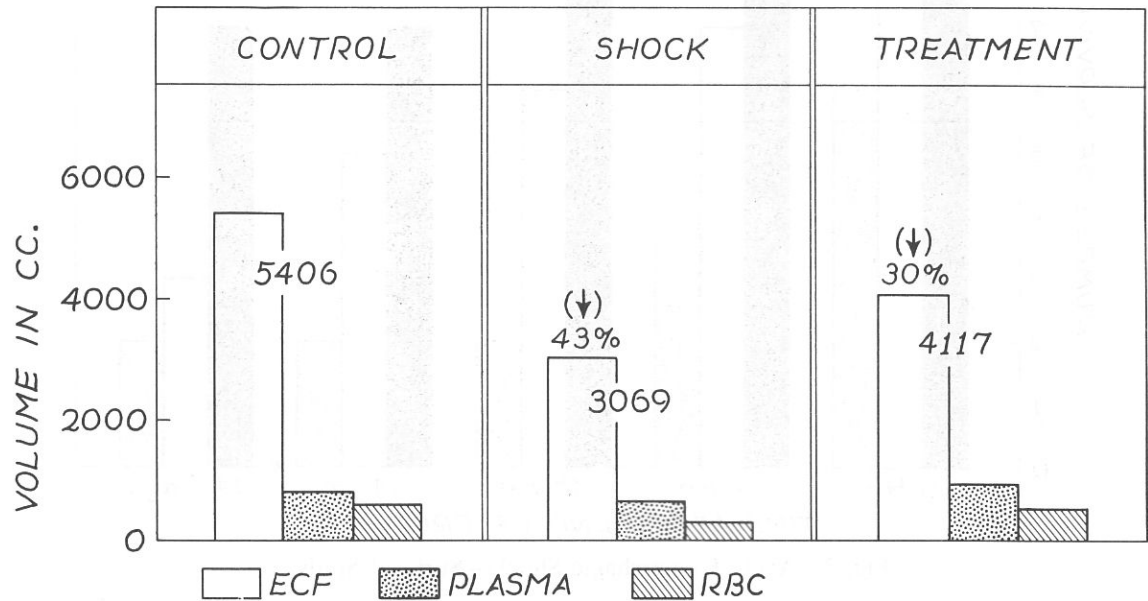
In the second group (Fig. 3), a separate but parallel study, thirty dogs were bled into shock by the above method. Ten were given lactated Ringer's solution equal to 5 percent of their body weight, plus shed blood following the two and one-half hour

period of shock. Ten were given donor plasma, 10 cc. per kg. plus shed blood. Ten animals were treated with shed blood alone, exactly as in the volume studies.

In this study only two of the ten dogs treated

with shed blood alone survived longer than 24 hours. When plasma was used in addition to whole blood as therapy, three dogs of ten so treated survived. Of the ten animals treated with lactated Ringer's plus shed blood, seven survived.

ACUTE HEMORRHAGIC SHOCK - VOLUME STUDIES
TREATMENT: BLOOD PLUS DONOR PLASMA



ACUTE HEMORRHAGIC SHOCK - VOLUME STUDIES
TREATMENT: BLOOD PLUS LACTATED RINGERS

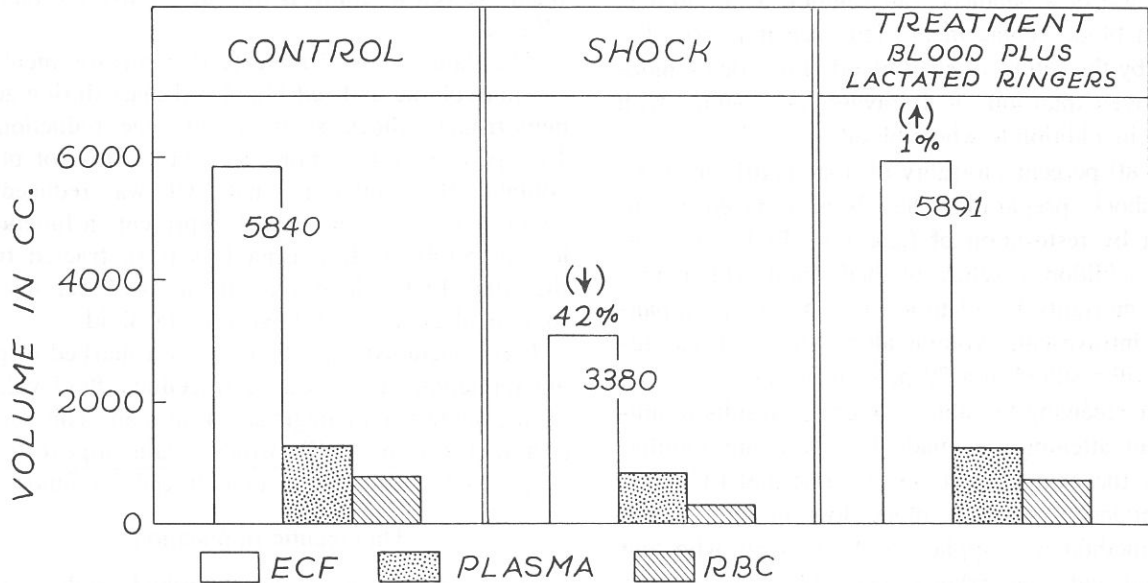


Fig. 2. Volumes in Hemorrhagic Shock.

ACUTE HEMORRHAGIC SHOCK - SURVIVAL STUDY

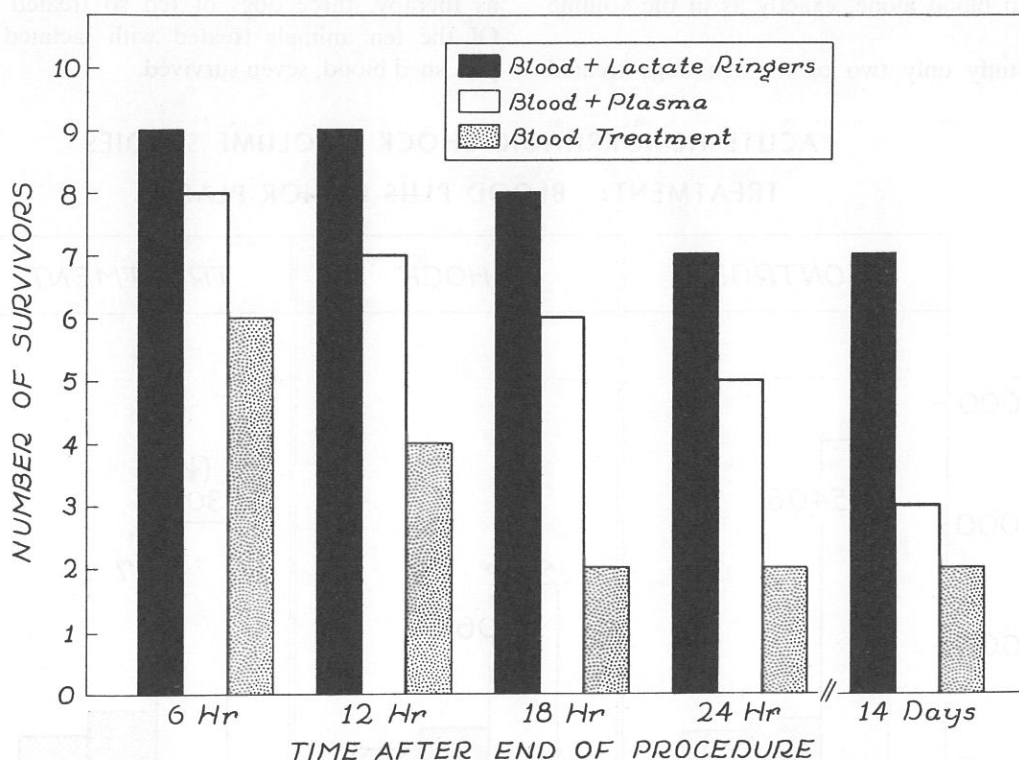


Fig. 3. Acute Hemorrhagic Shock—Survival Study.

These studies, then, again demonstrate a marked disparate reduction of functional extracellular fluid volume induced by hemorrhagic shock in dogs. They further indicate alleviation of this reduction in ECF by the use of a balanced salt solution as an adjunct to shed blood replacement. This deficit is not alleviated by the return of shed blood alone, or by moderate overexpansion of intravascular volume with plasma in addition to whole blood.

The 80 percent mortality of a standard "irreversible" shock preparation has been reduced to 30 percent by restoration of functional ECF fluid volume in addition to return of shed blood. This reduction in mortality is not thought to be due to expansion of intravascular volume alone, since plasma plus blood still resulted in a 70 percent mortality.

After receiving the above described results in animals, an attempt was made to investigate simultaneously the changes in blood volume and ECF volume induced by whole blood loss in man.³ The above method was applied to 18 patients who had sustained acute hemorrhagic shock. Immediately after arrival of the patients at the hospital, simultaneous plasma volume, red cell mass and extracellular

fluid volume determinations were performed. All volume studies were completed prior to the administration of whole blood. Determinations were repeated in a similar fashion one week later; these measurements served as controls for each individual patient. (Fig. 4)

The data obtained indicate that measurements of plasma volume and red blood cell mass during acute hemorrhagic shock show an average reduction of 18.7 percent, representing a 1131 cc. loss of blood volume. The total functional ECF was reduced an average of 31 percent, which represents a functional loss of 5200 cc. If plasma loss is subtracted from the total ECF, there remains a 4414 cc. loss of functional extravascular extracellular fluid.

It is concluded that there exists a marked disparate reduction in the total extracellular fluid volume during acute hemorrhagic shock in man. This reduction in functional ECF would again appear to be an internal redistribution of extracellular fluid.

Therapeutic Implications

In view of the previously described results, a new therapeutic regimen for the treatment of hemorrhagic shock in patients is being used currently.¹³ When

HEMORRHAGIC SHOCK IN MAN AVERAGE OF 18 PT.

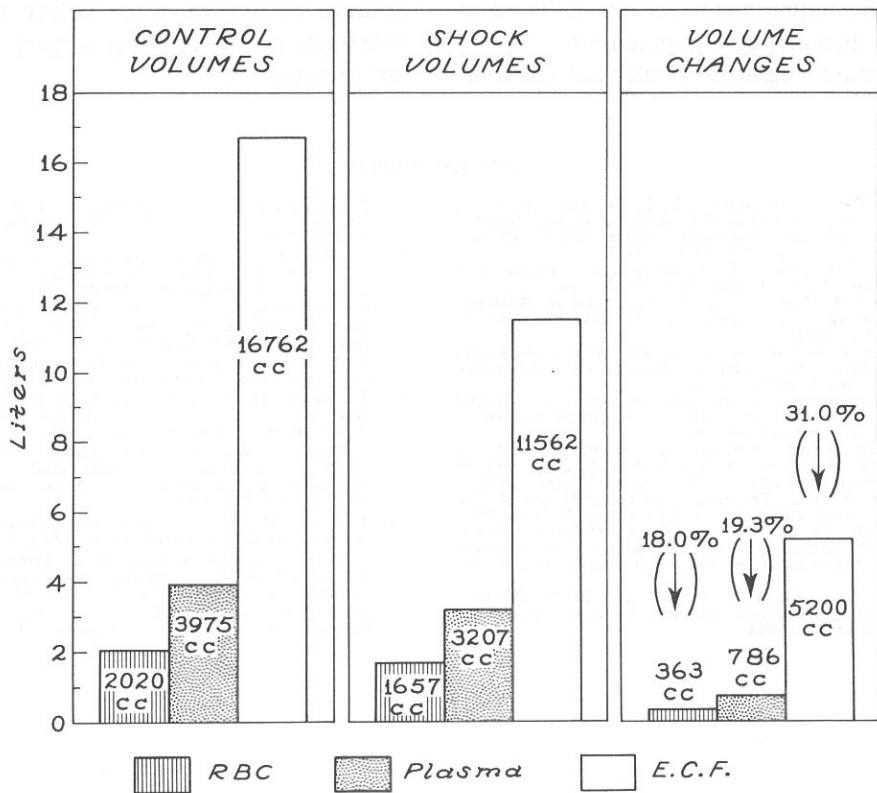


Fig. 4. Hemorrhagic Shock in Man—Average of 18 Pt.

patients are admitted to the emergency room in hemorrhagic shock, a large-gauge needle is inserted into an available vein and an infusion of lactated Ringer's solution is given at a very rapid rate so that, in a period of 45 minutes, between 1000 and 2000 cc. of lactated Ringer's solution has been given intravenously. This approach has several advantages:

1. It has been found that this is a very effective therapeutic trial to determine the pre-existing degree of blood loss, or the presence of continuing blood loss. It is often observed that blood pressure will return to normal, become stable, and remain so, in patients in marked hypotension after infusion of 1 to 2 liters of a balanced salt solution. When this response has been elicited and correlated with measurements of the three volumes, it has been shown that the degree of pre-existing blood loss was relatively minimal. If blood loss has been minimal and hemorrhage is not continuing, then hemorrhagic hypotension can be alleviated simply by the infusion of a balanced salt solution.

2. If blood loss has been severe or hemorrhage is continuing, then the elevation of blood pressure and decrease in pulse rate which occurs with rapid intravenous infusion of lactated Ringer's solution usually will be a transient one. At this time, whole blood which has been accurately typed and cross-matched is available and can be given immediately. Consequently, the initial use of the balanced salt solutions allows accurate typing and cross-matching, thus avoiding transfusion reactions which occur frequently with rapid administration of untyped or unmatched whole blood.

3. In view of the marked disparate reduction in the extravascular ECF as demonstrated in animals and man, it is felt that even though blood is needed, as it is in the majority of the patients admitted in hemorrhagic hypovolemia, the alleviation of the disparate reduction in functional ECF is a desirable one. Lactated Ringer's solution as initial therapy both from the standpoint of therapeutic trial as well as therapeutic adjunct is a procedure that has been found to be virtually free of side effects in over

1200 patients. Further, it is our impression that the use of balanced salt solutions in this fashion significantly reduces the requirements for whole blood in the patient with hemorrhagic hypotension.

4. Using the above regimen of balanced salt solu-

tion and whole blood, as well as local renal hypothermia in selected instances, there has not been an instance of oliguric renal failure produced in over 5000 patients under going surgery for acute abdominal trauma.

BIBLIOGRAPHY

1. J. B. Aust, S. N. Chou, J. T. Marvin, E. L. Brockney and G. E. Moore: A rapid method for clinical total blood volume determination using radioactivated iodinated human serum albumin (RIHSA). *Proc. Soc. Exper. Med.* 77:514, 1951.
2. M. Cooper, and C. A. Owen, Jr.: Labeling human erythrocytes with radiochromium. *J Lab & Clin Med* 47:65, 1956.
3. C. A. Crenshaw, P. C. Canizaro, G. T. Shires and A. Allsman: Changes in extracellular fluid during acute hemorrhagic shock in man. *S Forum* 13:6, 1962.
4. K. R. Crispell, B. Porter and R. T. Nieset: Studies of plasma volume using human serum albumin tagged with radioactive iodine-131. *J Clin Invest.* 29:513, 1950.
5. A. Gilman: Experimental sodium loss analogous to adrenal insufficiency: The resulting water shift and sensitivity to hemorrhage. *Am J. Physiol.* 108:662-669, 1934.
6. S. J. Gray and H. Frank: Simultaneous determination of red cell mass and plasma volume in man with radioactive sodium chromate and chromic chloride. *J Clin Invest* 32:1000, 1953.
7. S. J. Gray and K. Sterling: The tagging of red cells and plasma proteins with radioactive chromium. *J. Clin Invest* 29:1604, 1950.
8. A. W. Klement, Jr. D. E. Ayer and D. R. McIntyre: Simultaneous use of ^{131}I albumin and Cr^{51} -labeled red cells in blood volume studies in the goat. *Proc Soc Exper Biol & Med* 87:81, 1954.
9. H. Krieger, J. P. Storaasli, H. L. Friedel, and W. D. Holden: A comparative study of blood volumes in dogs. *Proc Soc Exper Biol & Med* 68:511, 1948.
10. P. H. Laviates, J. Bourdillon and K. A. Klinghoffer, The volume of the extracellular fluids of the body. *J. Clin Invest* 15:261, 1936.
11. M. Reynolds: Cardiovascular effects of large volumes of isotonic saline infused intravenously into dogs following severe hemorrhage. *Am J. Physiol* 158: 418-428, 1949.
12. S. M. Rosenthal and H. Tabor: Electrolyte changes and chemotherapy in experimental burn and traumatic shock and hemorrhage. *Arch Surg* 51:244-252, 1945.
13. T. Shires, C. J. Carrico and D. Coln, Role of the extracellular fluid in shock. *Internat Anes Clin* 2: 435-454, 1964.
14. T. Shires, F. T. Brown, P. C. Canizaro and N. Somerville: Distributional changes in extracellular fluid during acute hemorrhagic shock. *S. Forum* 11:115, 1960.
15. T. Shires, J. Williams and F. Brown: Simultaneous measurement of plasma volume, extracellular fluid volume, and red blood cell mass in man utilizing ^{131}I S^{35}O_4 , and Cr^{51} . *J Lab & Clin Med* 55: 776-783, 1960.
16. T. Shires, D. Coln, J. Carrico and S. Lightfoot: Fluid therapy in hemorrhagic shock. *Arch Surg* 88: 688-693, 1964.
17. J. P. Storaasli, H. Krieger, H. L. Friedell and W. D. Holden: Use of radioactive iodinated plasma protein in the study of blood volume. *Surg Gynec & Obst* 91: 458, 1950.
18. H. D. Wiggers and R. C. Ingraham: Hemorrhagic shock: Definition of criteria for its diagnosis: *J Clin Invest* 25:30, 1946.

MEDICAL ARTICLES

THE DIRECTOR OF MEDICAL EDUCATION

George H. Reifenstein M.D.*

The Director of medical education is a relative newcomer to the medical education stage. Although there are disputed and accepted concepts of his position, his role in the development of continuing education for physicians is an important one.

In trying to implement The Essentials of Approved Internships and Residencies,** in his hospital, the director of medical education meets a number of problems. These will be the focus of this discussion.

Changes in medical education have been most rapid during our lifetime. As a result the philosophy of education is being viewed from a new perspective. Pressure by physicians and hospitals has greatly increased the number of internships and residency programs, and this development in turn, has catapulted

the position of directorship of medical education to its present popularity. There are, today, approximately 1000 full- or part-time directors of medical education in this country. Of this number, more than 350 are members of the Association of Hospital Directors of Medical Education. Although this organization was founded just eight years ago, it is a strong force in influencing the progress of medical education.

In presenting an accurate picture of this position, it is important to decide what *not* to include. Hence, it might be well to determine what most directors of medical education believe that their position *is not*. Most believe that their function is not that of solving all of the educational problems in a community hospital, whether it be university or nonuniversity affiliated. The thoughtful director of medical education would dispute that he should be a "whiz kid," or a recruiter of house staff. He would reject the suggestion that he views his position as a hobby, or that he sought the position to escape from the ardors of medical practice or academic life into a world of supposed serenity. He would lean toward

* George Reifenstein, M.D. is director of medical education and research, St. Mary's Hospital, San Francisco.

** American Medical Association, Directory of Approved Internships and Residencies (Chicago: The Association, 1964) p. 119 and 283.

the belief that most of the progress he hopes to achieve will occur by evolution rather than by revolution, and because one cannot function in a vacuum, he does not believe that he can function efficiently without administrative and staff support.

Accepted Concepts

What then, are the accepted concepts of the position of director of medical education? These, generally speaking, are the qualifications: He should be an individual dedicated to, and presumably experienced in medical education. He should be scholarly, mature, and preferably seasoned and respected in his own field. He should be interested in teaching and have teaching ability. He should have administrative ability and should possess considerable authority—which he may rather infrequently employ. In addition, he should be an active member of the hospital staff, and should serve as important liaison between the staff and administration. In his empire, he may be a combined dean, professor, confessor, and diplomat. He may be a full- or part-time chief of service. In time, he should become increasingly involved in every hospital activity having to do with patient care, community relations, and research.

Implementation of the Essentials

The Essentials of Approved Internship is offered as a guide to the staffs of hospitals conducting intern programs, and it is the basis on which their training potential is evaluated. These essentials constitute minimal standards that should apply to every approved internship program. To the question, "Should there be a different set of essentials for so-called community teaching hospitals," I would answer that the implementation or fortification of the essentials of approved internship, rather than a new set of essentials, are the important considerations in situations where there is no large full-time faculty, where the majority of cases used in teaching are private patients, and where the so-called university affiliation is tenuous. Beyond this point, it is desirable to find ways of attaining educational goals that go far beyond a minimum.

Certain observations suggest that a discussion of prevailing practices is pertinent. One such observation is the number of institutions with approved internships whose number of internship positions remain relatively unchanged. Another, is the discrepancy between the number of interns and residents and the size of the institution. Many hospitals increase their bed size without proportionately increasing the available teaching staff. On the other hand, some

teaching institutions have remained about the same size but have so phenomenally increased the number of house staff members that one cannot help but wonder whether the internship education is primarily service oriented.

The *Essentials* indicate that the staff should recognize its obligation to permit the full use of all patients for teaching purposes, whether private or non-private. However of greater importance is the proper use of these patients. The *Essentials* further indicate that medical school affiliation is not a requirement for internship approval, and that, indeed, such restriction is neither desirable or practical for the national need for internship positions cannot be met by affiliated hospitals alone. The concept that an internship can be educational only in a medical school teaching hospital, or where there are large numbers of county hospital patients, has been proved invalid—a fact not recognized by many medical educators and potential interns despite the statement to that effect in the *Essentials*.

Teaching Staff

To develop a successful internship or residency program, the teaching staff must be selected from the entire medical staff membership. Members of the teaching staff should, of course, have the proper qualifications and be willing and able to teach. In very few hospitals do all staff members possess the proper qualifications. In hospitals where the majority of admissions are private patients, teaching services can be organized by assigning the proper volume of work to each intern and by providing the opportunity for continuity and follow-up in the conduct of rounds or clinics. Several attending physicians on one service may schedule rounds so that there is no conflict particularly if they are partners or have previously demonstrated an ability to cooperate in the performance of educational duties.

In selecting physicians for the teaching staff, the following elements should be considered: (1) interest, (2) ability, (3) past teaching experience, (4) attendance at departmental conferences, (5) evaluation of the physician's efforts by interns, residents, and the director of medical education, and (6) willingness to participate in other hospital functions, such as care of charity patients. An attending physician may not be skilled in every component of the educational procedure—conducting bedside rounds, teaching at the operating table, leading departmental conferences, integrating basic science with the everyday care of the patient, etc. However, the director of medical education usually can find a place in

the educational program for the majority of staff members who indicate willingness to participate, although this may take time.

Intern Appointments

In general, directors of medical education are experienced in the careful selection of applicants for appointment to the intern staff. There is usually a wide variation among applicants with respect to motivation, industry, resourcefulness, basic medical knowledge, and integrity. Many medical schools give the hospital a careful appraisal of the applicant but some appraisals leave much to be desired. One of the strongest arguments for the continuation of the internship phase of medical education is that many individuals need the very experience that presumably they received during the formal four-year curriculum. Underdeveloped at graduation may be the ability to take a good history, examine the patient properly, and present a concise, but complete summary of the case.

The *Essentials* indicate that an adequate number of patients in each of the several major clinical divisions is a primary requisite, and that the number of patients for which the individual intern is responsible is important. If one considers that the intern studies not only admissions, but also sees patients in consultation with members of his teaching team, it becomes evident that merely to assign the intern a range of bed numbers is unrealistic. For the intern, there is no substitute for keeping a careful log of his experience, both as to the number and the variety of cases. Because the director of medical education evaluates these log sheets as part of his duties, he is able to organize the services to provide a proper volume of patients for the individual interns.

Affiliations

A word may be said here about the affiliation of various hospitals with the aim of providing more enriching internship or residency programs. Usually a weak hospital cannot be made stronger by affiliating with a stronger one. It seems far better for two hospitals having strong independently developed programs to affiliate for the purpose of providing educational features that cannot be obtained singly, rather than to form an affiliation in order to provide a house staff for a hospital that has been unable to mature educationally on its own. Therefore, the statement of affiliation with a medical school educational program, while supposedly having magical properties, should be viewed critically, and questions

such as the following should be answered: Exactly what is the nature of the affiliation? Does the affiliation provide mutual benefit for both the medical school institution and the community hospital? What means are carried out to assure the proper educational balance of both institutions? What is the role of the community hospital faculty in the medical school? What is the role of the medical school faculty in the community hospital? Is the community hospital able to assist the medical school in the teaching of undergraduate students? Does the affiliation at post-doctoral levels provide a balanced educational experience for interns and residents of both institutions?

Under certain well defined circumstances, the community hospital may well provide a very worthwhile educational experience for post-doctoral training.

Another potential hazard of hospital affiliation is the lack of continuity in the supervision of the educational program by the parent institution. Obviously, it is important that the same high educational requirements be met in both institutions. In most circumstances where a number of hospitals are affiliated, authority should be vested in one institution that has been designated as the parent institution.

Emergency Department

The emergency room of a generation ago is giving way to an emergency and treatment department that functions more or less as an extension of ambulatory medical care. A staff member or committee should continually monitor the operation of this department to see that it presents a worthwhile educational experience that does not conflict with the continuity of responsibility, or subordinate the educational purpose to the service functions of the internship. Again, a record kept by each house staff member is of much value. The fact that a house staff is present in the hospital should not mean an abrogation of responsibility by attending staff members. One cannot over-emphasize the impact of the example set by staff physicians in writing care progress notes, emphasizing ethical principles, and exhibiting a desire for self-education.

Continuing education is perhaps the one most important factor in the future of American medicine. Assessment of the needs, criticism of current methods, and imaginative development of new techniques are occurring continually. In these, the director of medical education can be of much help.

COMPLEX CLOSED FRACTURE

H. Earle Conwell, M.D., F.A.C.S.,* Conwell
Orthopaedic Clinic, Birmingham, Alabama.

For many years, I have emphasized¹⁻⁵ that the terms of simple and compound fracture are misnomers and not by any means always descriptive of the pathology present, especially the so-called *simple fracture*.

A *simple fracture*, so-called, can have the most complicated pathology to the surrounding tissues and many times is more complicated than the so-called compound fracture.

I insist that the simple and compound fracture terminology be changed to (a) *closed fracture* (and in many instances *complex closed fracture*) and (b) *open fracture*.

Too frequently following a traumatic condition to the body producing fracture of same without any breaking of the skin in and about the site of the fracture, it has been diagnosed as a simple fracture, but this does not describe the severity of the injuries to the fracture as well as to the surrounding tissues. Such terminology in such type incident does not outline by any means, in thousands of cases, the marked injury to the *soft tissues* as well as the marked *intra-muscular hemorrhage* and does not outline the severe trauma to the *blood vessels* or the *loss of sensation* of the parts of the tissues involved, distal or proximal to the fracture. Neither does such term state the marked deformity of the limb and displacement of the fragments in many cases; but if all these exist and the skin is still not lacerated or no open wound is present, it is called a simple fracture. This is, indeed, most non-descriptive.

Therefore, a simple fracture, so-called, can have any other pathological findings than a simple condition. A so-called simple fracture can indeed be much more complicated and complex than any compound fracture and it is important that we classify such fractures as *complex closed fractures*.

* Dr. Conwell is Associate Professor Emeritus, Orthopaedic Surgery, University of Alabama Medical College, a Life Counsellor, medical Association of the State of Alabama, and Chief, Conwell Orthopaedic Clinic.

The emergency department of the average hospital in their out-clinic or admitting report seldom describes the severe trauma to the allied soft tissues complicating the so-called simple fracture. Therefore, realizing that the term simple fracture generally is thoroughly inadequate to describe the trauma received in such fractures, I suggest changing the term of these fractures to *complex closed fractures*.

A *complex closed fracture* is a fracture which has received severe trauma to either or all of the surrounding soft structures, i.e., skin (without open wound), muscles, blood vessels and nerves. The bony fragments frequently are displaced to a marked degree.

The complex closed fracture should be further described as to the type of bony injury. For example: *complex closed fracture* (transverse, comminuted, spiral, or oblique, as the case may be).

"Complex," as defined by "Webster's New International Dictionary," unabridged, is as follows: (1) an assemblage of related things, (2) a whole made up of complicated or inter-related parts.

I make an appeal that this fracture definition be used by the members of the medical profession. Besides expressing more adequately the pathologic findings in such type fracture, it will mean improved records for the hospitals and convey a better description of the fracture to the *insurance companies*, *compensation boards*, *legal profession*, (eliminating the too often question, "*Doctor, this was just a simple fracture, was it not?*"), all thereby being of much help to the patient, the physician, and every one concerned.

REFERENCES

1. Key and Conwell: Management of Fractures, Dislocations and Sprains, first edition, 1934 through sixth edition, 1957. Conwell and Reynolds: Management of Fractures, Dislocations and Sprains, seventh edition, 1961.
2. Conwell, H. Earle: Complex Simple Fracture (Letter to the editor), J.A.M.A., 135: 531, October 25, 1947.
3. Conwell, H. Earle: Certain Problems in Fracture Treatment. J.M.A. Georgia, 41: 343-346, August, 1952.
4. Conwell, H. Earle: Conservative Surgery in Fracture Treatment. West. J. Surgery, 63: 31-36, January 1955. Read before Sixth Pan-Pacific Surgical Congress, Honolulu, Hawaii, October 7, 1954.
5. Standard Nomenclature of Diseases and Operations, fifth edition, 1961, American Medical Association, (Conwell, Chairman Musculoskeletal Section). Pp. Vii, 150-151.

(Reprinted from the Journal of the Medical Association of the State of Alabama, 34: 9-10, July 1964. Printed in the U.S.A.)

DENTAL SECTION

THE MEASUREMENT OF HUMAN INTRAPULPAL PRESSURE AND ITS RESPONSE TO CLINICAL VARIABLES

E. E. Beveridge and A. C. Brown, Oral Surg., Oral Med., and Oral Path. 19(5):655-668, May 1965.

In seven 10-15 year-old subjects, a total of 20 sound first permanent maxillary and mandibular premolar teeth were used for measurement of intrapulpal pressure responses to simulated clinical procedures. To prepare the teeth for cannulation, a No. 1 half-round bur with air coolant, and in an Airtor handpiece was used to cut through the enamel and onto the dentin, usually near the mesiobuccal line angle about 2 mm coronal to the rubber dam clamp. In this cavity preparation, a 72 gauge wire twist drill in a pin vise was used manually to tap a small hole through the remaining dentin into the pulp. Under a dissecting microscope the pulpal tap released a clear, colorless fluid in 17 cases, and a blood-tinged fluid in the remainder. A 22 gauge, threaded cannula was screwed 2-3 mm into the cavity preparation but not into the pulp. The cannula was connected with polyethylene tubing to a pressure transducer, and the entire system was filled with sterile normal saline solution. A microsyringe connected to the closed system permitted saline solution to be injected into, or withdrawn from, the system, thus causing positive or negative pressure which, presumably, injected saline solution into the pulp or withdrew fluid from the pulp. Both the pulse wave and the pressure were recorded. Pulp pressure averaged 28 mm Hg., with standard deviation of 9 mm. Hg. The pulp's pulse wave concided with simultaneous recordings of the radial artery pulse. In the pulp pulse, the difference between systolic and diastolic pressures ranged from barely perceptible to a high of 9 mm Hg.

Injection or withdrawal of 0.05 μ l of saline solution caused an immediate increase or decrease in intrapulpal pressure, followed by equilibration at a slightly higher pressure than prior to injection or withdrawal (hysteresis).

Application of heat or cold caused delayed increase or decrease of intrapulpal pressure, followed by equilibration and hysteresis. Periapical infiltration of 2 percent lidocaine (no vasoconstrictor) caused about 30 mm Hg. increase in intrapulpal pressure, together with an increase of pulse pressure.

Reactions to removal of tooth structure varied with the type and duration of cutting. Both pressure and pulse reactions tended to be more pronounced as cutting progressed closer to the pulp.

The authors present this work as a pilot study. Further study of in vivo pulp pressure and pulse responses should bring important new information to the dental profession.

PULP REACTIONS TO CROWN PREPARATION, IMPRESSION, TEMPORARY CROWN FIXATION AND PERMANENT CEMENTATION

K. Langeland and L. K. Langeland, J. Pros. Den. 15(1):129-142 January-February 1965

Full crown procedures cause more severe pulp reactions than other operative procedures because many more dentinal tubules are exposed. This report illustrates the histologic effect on the pulp of each step in full crown techniques and offers guides for the reduction of pulp injury. Among the many essential procedures which may cause pulp injury are cavity preparation, impression-making, temporary fillings, and cementation. In general, the injuries are caused by heat, desiccation, and/or chemical injury. The purpose of this investigation was to delineate the pulp reactions to each major step in the construction and cementation of artificial crowns on vital teeth, so that the preferred procedures may be detailed for dental practice.

Crown Preparation. The pulp response to tooth reduction for crown preparation followed the pattern of pulp response to cavity preparation. Crown preparation is generally attained with larger instruments which will tend to "run dry". This may be

alleviated by using an adjustable spray which will cover the entire rotating instrument. The pressure of the spray should be sufficiently strong to penetrate the centrifugal forces of high-speed rotating instruments. The spray nozzle should be close to the shank of the instrument and should lubricate small burs as well as long diamond points at the cutting site. Discs present a special problem. If the spray is directed toward the side of the disc which revolves away from the tooth, it offers no protection. Until the manufacturers of dental engines increase the effectiveness of spray mechanisms, a dental assistant should supplement the spray with a hand-operated water coolant, directed to the precise area where the rotating instrument is in contact with the tooth.

Impression-making. Dietrich's impression material and stick compound require heating. However, only the stick compound caused a pulp reaction. No conclusions can be drawn as to the effect of elastic impression materials. Only a few teeth were tested, and the results suggest that the elastic materials used did not injure the pulp. Since there are many different elastic materials, it is possible that some may contain harmful chemicals and should be tested for pulp injury.

Temporary Coverage. Self-curing plastic crowns were allowed to set on the prepared teeth for one to two minutes, removed allowed to bench cure, and then relieved of about 0.5 mm from the inner surfaces. They were then cemented to place with zinc oxide and eugenol. These temporary crowns produced pulp injury similar to that found under self-curing plastic restorations. Gutta percha temporary crowns made directly on the teeth produced pulpal inflammation which the author ascribed to saliva leakage. On these premises, the author recommends use of preformed temporary crowns cemented to place with zinc oxide and eugenol. He also describes an indirect method for preparing self-cured resin crowns which may safely be used on fresh crown preparation. Editorially it does not appear that the author tested this subject on crown preparations that had been protected by a copal resin liner before exposure of the freshly cut dentin to the self-curing resins.

Cementation. The final cementation of a crown restoration will cause no reaction if the pulp has not been injured by previous procedures. This corroborates earlier investigations in which prepared cavities were filled with zinc phosphate cement and is in disagreement with investigators who reported contrary findings. It is likely that the moderate to severe

reactions reported after filling teeth with zinc phosphate cement were caused by injurious cavity preparation, drying, or sterilization.

In summary, the injurious procedures in crown preparation are cumulative. The sum of all these injuries may cause transient pulpitis, chronic pulpitis, and ultimately death of the pulp. A chronic inflammation may persist with or without postoperative pain.

EARLY CARCINOMA OF THE LIP: DIAGNOSIS AND TREATMENT

W. N. Van Zile, Oral Surg. 23(1):50-59 January 1965.

A high cure rate is possible with early recognition and treatment of Squamous-cell Carcinoma of the lip. If not detected early in its course, however, the neoplasm may spread by metastasis or by direct extension along lymphatic channels. All too frequently an obvious lesion has been treated while other existing small foci of malignant or pre-malignant tissue existing on the same lip have been allowed to remain.

Neither the classical "V" wedge excision nor vermillionectomy "lip shave" is considered by the author to be adequate treatment in light of existing follow-up data.

A review of the records of the tumor board at the U. S. Naval Hospital, Oakland, covering a three-year period, revealed that eight patients had received multiple surgical excisions for carcinoma of the lower lip. Of these, five had developed two lip lesions, and two had developed four lesions. It was suggested by the author that such recurrences might have been prevented by employing a single procedure whereby not only the obvious lesions but also small adjacent pigmented or keratotic areas would be removed in one section. It was proposed that this be accomplished by means of a transverse wedge of the entire lip surface including sufficient subepithelial tissue to encompass any early tumor infiltration. A transverse wedge excision could be combined with the conventional "V" vertical wedge when necessary.

Eight patients were subsequently treated by this surgical procedure. Microscopic examination of the tissue specimens revealed multiple foci of carcinoma in five of the eight patients. Eighteen separate areas of early carcinoma were identified in tissue specimens from these five patients. In a later study of

40 lip resections by this method, 50 percent of the patients were found to have multiple neoplastic foci. Reviews of several cases were presented in detail and the results of follow-up examinations were given.

Early carcinoma of the lip was treated in this series by transverse wedge resection and combination vertical-transverse wedge excision including the entire exposed surface of the lip. The surgery did not impair function and in cases presenting a bulbous lower lip the procedure actually enhanced the pre-operative appearance.

The procedure proved to be more efficacious than the employment of the vertical wedge excision alone. By this combination of early detection and adequate eradication by transverse excision, a very excellent cure rate was obtained for this neoplasm.

(Abstracted by CAPT P. J. Boyne, DC USN USS BON HOMME RICHARD (CVA-31))

Editor's comment: It is interesting to note that CAPT W. N. Van Zile, DC USNR (Ret), Professor of Oral Surgery, University of Oregon School of Dentistry, has reported on this material he developed while on duty at the U. S. Naval Hospital, Oakland.

PERSONNEL AND PROFESSIONAL NOTES

Commendation Awarded Captain Victor J. Niiranen. Following his recent detachment from duty as Staff Dental Officer, Headquarters, U. S. Marine Corps, Captain Victor J. Niiranen, DC USN, was awarded a commendation by General Wallace M. Greene, Jr. Commandant, U. S. Marine Corps.

The accompanying letter commended Captain Niiranen for his resourcefulness and exceptional competence in substantially improving the dental support of Marine Corps readiness. Among the items singled out were support to the Inspector General of the Marine Corps, solution of specific complex problems, dental readiness exercises for Fleet Marine Force units and physical fitness of dental personnel, as well as training lectures, booklets, manuals, and direction of research and development of dental equipment.

In his new duty assignment, Captain Niiranen serves as Assistant Chief, Dental Division, Bureau of Medicine and Surgery.

Opportunity to Join Dental Section, American Public Health Association. Naval dental officers are now being afforded the opportunity to become members of the American Public Health Association.

Membership in the APHA is of particular advantage to the military dentist. Through the official journal, "The American Journal of Public Health," he will, for the first time, have at his disposal a publication that will give him an insight into health problems of population groups and means of coping effectively with them. Such knowledge should be of interest to all dental officers but will be of particular interest to all senior dental officers and their preventive dentistry officers.

Endorsement and application forms may be obtained by writing to Captain Frank D. Grossman, DC USN, Navy Department, Bureau of Medicine and Surgery, (Code 611A) Washington, D. C. 20390.

Navy Inaugurates New Preventive Dentistry Facility. Rear Admiral F. M. Kyes, DC USN, Assistant Chief of the Bureau of Medicine and Surgery, and Chief of the Dental Division, cut a ribbon to officially open the new preventive dentistry facility at the Submarine Medical Center, U. S. Naval Submarine Base New London, Groton, Connecticut. The preventive dentistry facility was designed cooperatively by Captain F. P. Scola, DC USN, Preventive Dentistry Project officer, Submarine Medical Center, and Captain G. O. Stead, DC USN Base Dental officer, with enthusiastic support by their Commanding Officers, Captains C. L. Waite MC USN and N. D. Gage, USN. This specially constructed preventive dentistry room will be used jointly by the two commands. Captain Scola will conduct a clinical evaluation of the cariostatic benefit of stannous fluoride in three agents, using a Navy Dental Corps-developed self-preparation technique for topical application of stannous fluoride. Using the same preventive dentistry room and technique, one dental officer and two dental technicians from Captain Stead's staff will provide the treatment annually to 23,000 sailors stationed at the Submarine Base and in ships homeported at that base.

Following the opening ceremony, Admiral Kyes and his staff, consisting of Captains C. A. Ostrom and F. D. Grossman, DC USN observed the first two groups of men to be treated under the supervision of Captain Scola.



Dental Officer Presentation. CAPT K. C. Hoerman, DC USN, U. S. Naval Medical Research Institute, Bethesda, Maryland, presented a paper entitled "Osseous and Dental Luminescence Following *in vivo* Association of Tetracyclines with Calcium," before a symposium on Dental Staining and Antimicrobial Therapy sponsored by the Jefferson Medical College, Department of Pediatrics, 14-15 May 1965, in Philadelphia, Pennsylvania.

LCDR H. J. Keene DC USN, U. S. Naval Training Center, Great Lakes, Illinois, presented an essay entitled, "The Relationship of Maternal Age, Parity, and Birth Weight to Hypodontia in Naval Recruits," before the Thirty-fourth Annual Meeting of the American Association of Physical Anthropologists, on 28 May 1965, at the Pennsylvania State University, University Park, Pennsylvania.

LT R. T. Nelson, DC USN, USS BRYCE CANYON (AD-36), presented a table clinic entitled, "Amalgam Carving Technique," before the Southern California Dental Society, on 10 May 1965.

The following dental interns of the U. S. Naval Hospital, Great Lakes, Illinois, presented table clinics as indicated before the Wisconsin State Dental Society on 12 May 1965, in Milwaukee, Wisconsin.

LT D. L. Bozikowski, DC USN
Partial Dentures with Minimal Claspings
LT W. J. Buchholtz, DC USN
Management of Dentulous Mandibular Fractures
LT R. D. Pawlak DC USN
Intracanal Medication in Endodontics
LT E. P. Theiss, DC USN
Temporary Crown and Bridge Coverage

U. S. Naval Dental Corps Continuing Education Program. The U. S. Naval Dental School, Bethesda, Maryland, begins its series of continuing education courses for the Fiscal Year 1966 with Periodontics to be presented 27 September-1 October. Others that follow are:

Removable Partial Dentures 4-8 October
Oral Pathology 18-22 October
Endodontics 25-29 October
Oral Surgery 10-14 January
Oral Roentgenology 17-21 January
Complete Dentures 31 January-4 February
Occlusion 7-11 February
Fixed Partial Dentures 18-22 April
Operative Dentistry 25-29 April
Preventive Dentistry 2-6 May

Quotas have been assigned to District and Staff Dental Officers for active duty career officers. District Commandants have likewise been assigned quotas for Naval Reserve Officers (Ready Reserve). Applications are accepted in accordance with current directives.

Naval Reserve Dental Officer Heads Chicago Dental Society. CAPT S. W. Lynch DC USNR-R, has been installed as President of the Chicago Dental Society. CAPT Lynch is an active member of the Naval Reserve Dental Company 9-3, Chicago, Illinois.

EDITORIAL DESK

MEDICAL ASPECTS OF ADVANCED WARFARE

This course is designed to familiarize key Medical Department officers with the general characteristics of, and the problems associated with, air warfare systems with particular emphasis placed on nuclear weapons, missile delivery systems and medical problems related thereto.

CLASS *INCLUSIVE DATES*
OZR 9300-4 1-5 November 1965

DEADLINE DATE TO APPLY
17 September 1965

The above scheduled course will be conducted by the U. S. Air Force, at the Headquarters Air Training Command, Randolph Air Force Base, Texas.

Secret Security Clearance is required on all candidates for attendance, and selections will be on "need-to-know" priority basis.

Requests should be forwarded in accordance with BUMED INSTRUCTION 1520.8A and comply with the deadline date as indicated above. All requests must indicate that a security clearance of SECRET has been granted to the officer requesting attendance, and an explanation in regard to their "need-to-know".

—Training Branch, BUMED.

CHEMICAL, BIOLOGICAL AND RADIOLOGICAL WEAPONS ORIENTATION COURSE

Seventeen classes in the Chemical, Biological, Radiological Weapons Orientation Course will be conducted at the U. S. Army Chemical Corps Proving Ground, Dugway Proving Ground, Dugway, Utah, by the Department of the Army during the Fall and

Winter 1965 and Spring 1966. The duration of the course is three and one-half days.

Officers of Lieutenant Commander through Flag rank are eligible to attend. Persons who have received complete CBR briefings during the past year should consider delaying their attendance. TOP SECRET security clearance is required. Limited quotas will be provided the Bureau of Medicine and Surgery by the Chief of Naval Personnel on a "first come first served" basis. Requests should be forwarded in accordance with BUMED INST 1520.8.

The course provides a high level orientation on Chemical, Biological Warfare, and Radiological Implications of Nuclear Warfare, and is designed to acquaint senior military personnel of the Armed Forces with United States doctrine, policy, techniques and capabilities in CBR Warfare.

Convening Dates of Courses

30 August	1965	28 February	1966
13 September	1965	7 March	1966
20 September	1965	21 March	1966
4 October	1965	28 March	1966
11 October	1965	25 April	1966
1 November	1965	2 May	1966
15 November	1965	16 May	1966
29 November	1965	23 May	1966
6 December	1965		

—Training Branch, BUMED.

NAVY NURSE CORPS HONORED ON FIFTY-SEVENTH ANNIVERSARY

Governor John Love proclaimed 9 May through 15 May 1965 as Navy Nurse Corps Week in the State of Colorado and urged the citizens of his state to support the Navy Nurse Corps, its goals and traditions.

In his proclamation of Navy Nurse Corps Week Governor Love stated:

WHEREAS, 1965 is the fifty-seventh anniversary of the Navy Nurse Corps, a vital organization in the United States Navy and an essential component in the defense of the United States of America; and

WHEREAS, the Navy Nurse Corps supports the fleet by maintaining the health of the members of the United States Navy; and

WHEREAS, the Navy Nurse Corps throughout the years and throughout the world has served its country in the highest traditions of professional excellence in time of peace and in time of national emergency; and

WHEREAS, Navy Nurses continue to carry out this mission, working in the fields of nursing care, teaching, and nursing research, around the globe, afloat and ashore; always striving for greater perfection in these fields.

LETTER OF APPRECIATION

Please extend my thanks and appreciation to LCDR Veronica Durkin, Nurse Corps, U. S. Navy, for her outstanding contribution toward the overall success to our recent meeting of the Defense Advisory Committee on Women in the Services.

On Monday 26 April 1965, after devoting much time to preparation and rehearsal, LCDR Durkin served on a recruiter's panel which acquainted the members, in most effective manner with problems they can expect to encounter in dealing with and interpreting to the public the role of women in the services. The panel challenged the members with the job to be done if they are to effectively accomplish the committee mission.

LCDR Durkin's remarks were thoughtfully developed and expertly presented. Her excellent appearance, enthusiasm and polished manner created a fine impression on all who were privileged to hear her.

The Directors of the military women's components and the DACOWITS Secretariat join me in expressing pride over her having represented women in the Services so creditably.

S/Norman S. Paul

SUBMARINE MEDICINE INDOCTRINATION COURSE FOR RESERVE OFFICERS

The School of Submarine Medicine, U. S. Naval Submarine Medical Center, U. S. Naval Submarine Base New London, Groton, Connecticut conducts a two weeks indoctrination course in submarine medicine four times a year.

The next two classes will convene on 12 July and 11 October 1965. The curriculum includes: Submarine Medical Department Administration; Preventive Medicine and Sanitation; Nuclear Medicine, Atmosphere Control and Toxicology; Diving Medicine; and Basic Submarine Line Officers Training.

Practical exercises and tours include: laboratory exercises in atmosphere control and radiological health; pressure test; submarine escape training; tours of the Submarine Medical Center, a submarine tender, a submarine rescue ship, a nuclear submarine; and a day at sea in a conventional submarine.

Male reserve officers in the Medical Corps and the Medical Service Corps on inactive duty are eligible to attend. Secret clearance is required. Interested eligible officers should submit applications for this training to their cognizant Naval District Commandant. Quotas for this course have been assigned to the training activity.

BuPers Inst. 1571.4K of 15 April 1965 promulgated this course. Wide dissemination is requested. —Commanding Officer, U. S. Naval Submarine Medical Center, U. S. Naval Submarine Base New London, Groton, Connecticut.

HIGH NAVY AWARDS GO TO TWO RESEARCHERS AT THE U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY

A physicist who is a world leader in radiation dosimetry research and a medical doctor who four years ago gave up a successful practice in internal medicine and hematology to devote full-time to research today (Monday 7 June 1965) received Superior Civilian Service Awards. The presentations were made to Mr. Eugene Tochilin and Dr. Marvin L. Tyan at the U. S. Naval Radiological Defense Laboratory in San Francisco, Calif., where they are employed, by RADM Edward J. Fahy, acting for the Chief of the Bureau of Ships. (Admiral Fahy is Commander of the San Francisco Bay Area Naval Shipyard.)

Mr. Tochilin was cited for leadership in research in the field of radiation dosimetry which has produced contributions of major significance to the Navy; and Dr. Tyan was commended for significant new experimental research in the fields of transplantation immunology and mammalian radiation biology. The Superior Civilian Service Award includes a certificate and pin and is the highest award that a Navy Bureau Chief may grant. These two certificates were signed by RADM W. A. Brockett, Chief of the Bureau of Ships, which is assigned management control of NRDL.

Nuclear Needs

Sophisticated instrumentation needed as a result of the nuclear age has been developed under the guidance of Mr. Tochilin, enabling personnel casualty predictions and material damage assessment to be significantly improved. As one example, his work in microcalorimetry provides a capability for measuring the absorbed radiation dose, a quantity more nearly related to effect than exposure, the quantity measured, by earlier dosimetry systems.

Born in Basra, Iraq, Mr. Tochlin attended the University of California, receiving a B. A. degree in 1941. He served in the U. S. Navy as a Lieutenant during World War II and has been at NRDL since 1947. He heads the Radiological Physics Branch in the Nucleonics Division. This Branch is concerned with the dosimetry of nuclear radiations as associated with various nuclear phenomena and methods of detecting nuclear detonations.

For the past seven years Mr. Tochilin has been a consultant to the Subcommittee on Radiation Dosimetry of the National Committee on Radiation Protection. He served as Chairman of the Dosimetry Task Force for the American Society for Testing Materials for several years. He is a Certified Radiological Physicist, American Board of Radiology; a Certified Health Physicist, American Board of Health Physics; and a member of the Health Physics Society, Radiation Research Society, Sigma Xi, and the American Association of Physicists in Medicine.

According to CAPT D. C. Campbell, Commanding Officer and Director of NRDL, Mr. Tochilin's support of the Biological and Medical Sciences program at the Laboratory on radiation dosimetry in living systems has been invaluable in supplying meaningful and quantitative radiation dosimetry information. Without such information there would have been no basis for relating injury or mortality to the critical parameter of radiation input.

Mr. Tochilin received an Outstanding Performance Award for 1964; a Superior Achievement Award in 1962; and a Commendation for his participation in a field test in 1951.

He and his wife, Mary Lee, live at 6 Huntington Drive, San Francisco. They have three children, Susan, 19; Jerry, 18; and Mark, 19 months.

Important to Medicine

Dr. Tyan's basic research in the areas of organ transplant and skin graft is of real importance to naval and military medicine as well as offering definite civilian uses. When there is a greater understand-

ing of this research, human body repairs from human "spare parts" may become a reality.

Already Dr. Tyan has extended the frontiers of knowledge in the fields of tissue transplantation, immunology and radiation biology, particularly as they relate to skin grafts and the reasons for rejection or retention in such instances.

A native of Los Angeles, Dr. Tyan served in the Army during World War II. He earned an A. B. degree at the University of California in 1949, and his M. D. from U. C. Medical School in 1952. He was in private practice in San Mateo, Calif., prior to joining NRDL's Biological and Medical Sciences Division in 1961. In 1963 he went to the world-renowned Karolinska Institute in Stockholm, Sweden, on a one year NRDL-sponsored Fellowship; and last year received the Laboratory's Gold Medal for Scientific Achievement.

Dr. Tyan is a member of the New York Academy of Science, AAAS, and the AMA. He and his wife, Marcia, have two children, Lynne, 6 and Paul, 4. They live at 2967 Mariposa Drive, Burlingame, Calif. (Helen C. "Pixie" Hicks, U.S. Naval Radiological Defense Laboratory, San Francisco, California, 94135.)

DR. HOWARD T. KARSNER AWARDED LIFETIME MEMBERSHIP ON THE SCIENTIFIC ADVISORY BOARD OF THE AFIP IN WASHINGTON D. C.

Dr. Howard T. Karsner, one of the world's foremost pathologists and a pioneer in American pathology, has been awarded an honorary lifetime membership on the Scientific Advisory Board of the Armed Forces Institute of Pathology in Washington, D. C.

The 86-year-old scientist, who now lives in retirement in the Kennedy-Warren Apartments, 3133 Connecticut Ave. N.W., was given a certificate bestowing the honorary membership in special ceremonies at the Institute. In presenting the certificate, AFIP Director Brig. Gen. Joe M. Blumberg said, "Few persons in the history of pathology have earned the position of prominence and universal respect that Dr. Karsner has carried so graciously for so many years. His contributions to not only the science of pathology, but also to the whole area of medical research and practice, have been invaluable. His longtime friendship and support for this Institute have added immeasurably to our mission of research, consultation and education in pathology." Dr. Karsner recently retired as an active mem-

ber of the Scientific Advisory Board, at which time the Board voted to make him a lifetime member.

The Scientific Advisory Board of the AFIP is composed of 20 of the nation's most prominent pathologists appointed by the Secretary of the Army to advise the Director of the Institute on scientific and technical matters. Dr. Karsner is the only pathologist ever to be granted a lifetime membership on the Board.



Many of this country's leading pathologists have been students of Dr. Karsner, among them: E. E. Ecker, Harry Goldblatt, Thomas D. Kinney, Simon Koletsky, Robert A. Moore, Alan R. Moritz, J. Lowell Orbison, Stanley P. Reimann, Otto Saphir, Harry R. Wahl and William B. Wartman.

Born in 1879 with a father, grandfather, two uncles and a granduncle who were practicing physicians, Dr. Karsner was graduated from the Boys' Central High School in Philadelphia in 1897 with a Bachelor of Science degree; in 1899 from the Philadelphia School of Pedagogy with a collegiate certificate; and in 1903 from the University of Pennsylvania Medical School as a doctor of medicine. From 1903 to 1905, he interned at the famous Blockley Hospital, now Philadelphia General Hospital, and then completed a residency at the Philadelphia Municipal Hospital for Contagious Diseases.

His Career in pathology began in 1908 when he became a Demonstrator at Penn. Leaving there in 1911, he served at the Harvard Medical School as Assistant Professor of Pathology until 1914 when he left Harvard to go to Western Reserve University in Cleveland as Professor of Pathology. He continued in that position until his retirement in 1949.

Concurrent with his teaching was his career as an active pathologist. He served in hospitals in Philadelphia, Boston and Cleveland; as Founder and Director of the Institute of Pathology at Western Reserve from its opening in 1929; as Director of Pathology at the Western Reserve University Hospital; and as Head of the Department of Pathology at the Cleveland City Hospital.

On his retirement from Western Reserve, Dr. Karsner declined to accept a position as Professor Emeritus in order not to detract from his successor, Dr. Alan R. Moritz, as Professor and Director of the Institute of Pathology. Seven Years later, when Dr. Moritz had firmly established himself as one of the country's most prominent pathologists, Dr. Karsner accepted the position.

His contributions to the scientific field began early, especially while he was at Harvard. They include research in Hodgkin's Disease, anaphylactic shock, embolism, thrombosis, and infarction, which led to some clarification of the pulmonic and bronchial circulations, toxic effects of oxygen concentrations and toxic nephroses. As early as 1913 he was working on research concerning the origin of immune-serum necrosis of the liver. Later his investigations included cardiac pathology, especially calcific aortic valve disease, "inflammation of arteries," gynecomastia, carcinoma of the large intestine, hepatic cirrhosis, and hormonally active ovarian tumors. He has written "Tumors of the Adrenal" for the Atlas of Tumor Pathology, which is published and distributed worldwide by the Armed Forces Institute of Pathology; "Human Pathology," a classic textbook in pathology first published in 1926 and reprinted several times since with the eighth edition appearing in 1955; and "The Principles of Immunology," which he co-authored with E. E. Ecker.

He has been an officer or member of more than a score of important scientific societies and organizations in this country and abroad. Among his offices was the chairmanship of the National Research Council from 1943 to 1957. This position began his influence with the American Registry of Pathology, a division of the then Army Medical Museum and now the Armed Forces Institute of Pathology. This influence extended later into the development

of the present Institute. He was Resident Consultant at the Institute in 1943-44, a member of the Scientific Advisory Board since creation in 1947, and chairman of the Board in 1948. His devoted interest and support have been major contributions to the Institute's scientific development and to the growth of the Institute into one of the world's leading centers for pathology research.

Dr. Karsner received the Gold Headed Cane, awarded by the American Association of Pathologists and Bacteriologists and considered the ultimate honor in American pathology, in 1952. The Cane, originated by Dr. Oscar Klotz, in 1919 as a token of recognition for excellence in pathology, has been held by such outstanding American scientists as Dr. William Welch, Theobald Smith, Frank Burr Mallo-ry, James Ewing and Ludwig Hektoen.

Characteristically, he chose not to hold the cane for the normal time and released it in 1958 to be

awarded to Dr. Ernest W. Goodpasture, then Scientific Director of the Armed Forces Institute of Pathology and Emeritus Professor of Pathology at Vanderbilt University. The Cane is now displayed at the Institute.

Since his "retirement," Dr. Karsner has been Research Advisor to the Surgeon General of the Navy; Chairman of the Joint Committee on Motion Sickness; suggested the establishment of the Inter-departmental Committee on Nutrition for National Defense, and the Joint Committee on Aviation Pathology; and has been responsible for the initiation of the Clinical Investigation Center at the Naval Hospital in Oakland, California., for the preservation of the Naval Medical Research Unit in Cairo, and took an active part in the reestablishment of the Research Unit #2 in Formosa.—Armed Forces Institute of Pathology, Washington, D. C.

FROM THE NOTEBOOK

AN APPRAISAL OF THE QUALIFYING MEDICAL EXAMINATION FOR ADMISSION TO THE U. S. NAVAL ACADEMY

BY J. A. Syslo, Captain MC USN

With the close of the academic year 1964-65 it is desirable to evaluate some aspects of the Qualifying Medical Examination for admission to the U. S. Naval Academy. The successful applicants subjected to this examination will constitute the graduating class of 1969.

For the Class of 1969 several innovations were introduced in the medical examination. First, a standard medical examination was agreed upon by the Army, Navy, and Air Force. This examination, properly completed, is acceptable by any one of the three armed services and should not be repeated by the applicant if he applies during the same period to another or both remaining armed services for admission. Second, the so-called preliminary examination, almost completely identical with the formal or qualifying medical examination, has been eliminated, thereby obviating the repetition. Screening examinations, very abbreviated and consisting of an evaluation in those areas most commonly the cause of

rejection, are performed in certain instances. All applicants are encouraged to apply to their personal or family physicians for a medical examination for the purpose of determining the presence of any gross defects which are correctable. Third, additional tests are required to make the medical examination acceptable to all three services; these include the ECG, red lens tests, reading aloud test and personal history booklet. Fourth, numerous additional naval examination facilities have been designated to perform qualifying medical examinations, not just for applicants to the Naval Academy but to the other two service academies as well. Lastly, the results of these medical examinations, namely the completed SF 88, SF 89 and personal history booklet, are sent for final evaluation and subsequent processing to the Permanent Board of Medical Examiners at the Naval Academy. Formerly, the processed examination reports were forwarded to the Bureau of Medicine and Surgery for final evaluation. This step has been eliminated; the processed and evaluated reports are retained at the Naval Academy throughout the midshipman's stay and are sent to the Bureau of Medicine and Surgery when the midshipman completes

his medical examination for commissioning in the U. S. Navy, or if for any reason he is disenrolled prior to commissioning.

Upon serious reflection, no one will doubt or underestimate the value of the medical examination for admission to the Academy. In large measure, these young men are the hard core of the line of our Navy. To treat the examination lightly, not to adhere to prescribed standards, to perform examinations in a perfunctory or unorthodox manner, to be too flexible or tolerant, to lose sight of the purpose of the examination for admission to the Naval Academy, is to invite weakening of the fiber of that hard core and eventually the Navy itself.

As mentioned previously, the qualifying medical examination capability of the Navy has been enlarged. This important function formerly was limited to naval hospitals and to certain facilities authorized by the Bureau of Naval Personnel. There are now a total of 78 qualifying naval medical examination facilities throughout the world. A medical examination in any one of these facilities entitles the applicant to submit a request for admission to any one of the armed services academies.

The success of this past year in the performance of qualifying medical examinations can be attributed, therefore, to all of the medical personnel of the numerous naval medical examination facilities that participated in the program. Despite the fact that an applicant examined at any designated Army, Navy, or Air Force examination facility is entitled to apply to any one of the academies for admission, the great majority of applicants to the Naval Academy were examined at naval examining facilities. This probably holds true for the other two services in so far as applicants to their academies are concerned.

New organizations as well as new methods, often better than those they supplant, introduce shortcomings, errors, and weaknesses that require correction. This applies to the organization, performance, evaluation and processing of the current qualifying medical examinations. The method is basically sound and can attain a high degree of success. Perpetuation of its shortcomings and errors, remaining silent about their existence, and permitting new flaws to be introduced will not develop the full worth of the current method of performing and processing qualifying medical examinations for admission to the Naval Academy.

It is an established custom in our Navy to give a "Well Done" to those who exert efforts in the

traditional Navy way in performing a job. The Permanent Board of Medical Examiners extends a sincere "Well Done" to all hands participating in the tedious, laborious and difficult task of performing qualifying medical examinations for admission to the Naval Academy. In many instances this is a task added to an already heavy burden of professional and administrative work. Despite these honest efforts to do a perfect job, errors, omissions and deficiencies, not readily detected at the source but more clearly visible and uncovered during evaluation and processing by the Permanent Board of Medical Examiners have assumed significant and important stature.

It is not sufficient to say that more care is necessary in obtaining a history to be documented on SF 89, nor will it suffice to say that the physical examinations, SF 88 need be performed with greater understanding of the problem involved. Specific instances of deficits will be indicated which generate enormous volumes of correspondence because some examiner, or some senior member, or some examining facility failed to perform the task with understanding, or failed to complete an examination as prescribed in pertinent directives.

Areas of the qualifying medical examination in which deficiencies most often occur and which give rise to voluminous correspondence and investigation are as follows:

1. *Incomplete Knowledge of Medical Standards for Qualification by Members of the Examining Boards and Teams.* What is considered normal by a practicing physician in civilian life does not necessarily meet the qualifying requirements for entrance into an armed forces academy. Typical of this shortcoming is the documentation of marginal medical findings which disqualify an applicant. Commonest examples are blood pressures of 132-140 systolic, 86-90 diastolic; absence of a testicle from the scrotum without qualification as to whether it is surgically absent, undescended, or atrophied; pulse rate of 102-110 per minute; urine specific gravity slightly below 1.010; color vision determination performed improperly; marginal disqualifying defects in visual or auditory acuity. All too often a single blood pressure reading of, for instance, 134/86 is recorded and no indication of more than one reading is in evidence. This requires corresponding with the applicant and requesting that he have this test properly repeated and the results submitted to the Permanent

Board of Medical Examiners for evaluation. It is estimated that because of the marginally abnormal blood pressure readings alone, over 1,500 letters were sent. The follow-up studies were completely normal in practically every instance. It is urgently requested that senior members of examining boards become thoroughly familiar with the requirements for qualifying medical examinations for entrance into the Armed Forces academies and that they, in turn, insist that members of their teams be equally proficient in the performance of their respective assignments.

2. *Overdelegation Without Proper Supervision.* Outstanding examples are recording of height, weight, pulse rate, blood pressure by hospitalmen who are uninitiated, uninformed, or not properly motivated; also recording of medical, surgical and family history by the applicant with the advice and guidance of a hospitalman. It is not implied that the Navy hospital corpsman is not able to perform his assigned task in the required manner. The great majority exceed expectations. Nevertheless, when an activity is charged with the responsibility of performing and recording qualifying medical examinations it is incumbent upon the officer in charge of the Examining Board to assure himself that every member of his team knows his task precisely, knows what to do in case of marginal deficiencies, and directs that all disqualifying defects be brought to his attention for any indicated follow-up.

3. *Failure to Dilate on Physical Defects, Present, Past, Familial, etc. to Enable the Permanent Board of Medical Examiners to Decide Whether or Not They are Disqualifying.* Items most commonly involved are history of familial illnesses and past history of hay fever, asthma, joint pathology, motion sickness, bed wetting, speech defect and sleep-walking. Deficiencies in this area generate much correspondence that can readily be avoided by documenting in sufficient detail the circumstances of family history and/or the past history of an illness. In the latter instances, the age at onset, duration, severity, associated disability, type, quantity and frequency of treatment, are all-important. Often, it is obvious that the interrogating physician elicited all of the necessary information but failed to record it, and instead refers to the item as "20. No residuals and NCD" or "35. Injury to knee. No residuals." Final decisions concerning a defect must be made by the Permanent Board of Medical Examiners which needs all findings and circumstances in sufficient detail to make the decision. The examining physician should request consultation in all instances in which

he feels either unable or not qualified to properly evaluate a defect or history of a past illness. BuMed Instruction 6120.19 (Ch. 2) is most helpful as a guide to procedures in cases of certain conditions and defects which require special tests, examinations and reports, such as history of asthma, skull fracture, elevated blood pressure, hay fever, jaundice, motion sickness, joint injuries, etc.

4. *Failure to Review the Completed Smooth Forms 88 and 89 by the Signatories.* This, too, occurs in a small but significant number of instances and adds an undesirable load of work to the very limited stenographic, secretarial and administrative facilities of the Permanent Board of Medical Examiners. Evaluation of the SF 88 and 89 received from the various naval activities frequently reveals errors in grammar, punctuation or spelling. These only rarely cause a statement or record to be unintelligible; however, the complete omission or obvious inaccuracy of such items as percent of nasal obstruction, results of urinalysis, reading aloud test; height and/or weight, refraction under cycloplegic, family history and any number of items of past and present history of illness on the SF 89 are certainly indicative of lack of review of the documented results by those who sign the forms. It is obvious that the reviewing senior medical officers signing these medical examination forms are in a position to detect those marginal physical defects which will be found by the Permanent Board of Medical Examiners to disqualify the applicant if allowed to stand, but which generate the voluminous correspondence, inquiries and re-examinations in order to clarify them. Such marginal disqualifying defects could and should be re-evaluated at the source, the results documented, and the unnecessary additional workload on the permanent Board of Medical Examiners entirely obviated.

5. *Delay of Re-appointment for Partial Re-examinations.* This is not serious if it occurs in isolated instances. The numbers, however, have been significantly large and at times this has caused a typical "log jam" in the processing of records. Prompt re-appointment for a re-evaluation or additional tests, for instance in cases with past history of jaundice, unconsciousness due to head trauma, diabetes in parents, hypertension, etc., will add to the efficiency with which records can be processed at the Naval Academy.

These five areas, in the main, are the largest breeders of additional correspondence. Attention to every detail of the qualifying medical examinations

continues to be absolutely essential. Greater attention, however, to the above enumerated items will help immeasurably in perfecting the current method of conducting examinations and processing the results.

SPECIAL CONSULTANT VISITS USNH, YOKOSUKA

On Tuesday 25 May 1965, Saul J. Robinson, M. D. Special Consultant to the Surgeon General, U. S. Air Force, for the American College of Physicians meeting at Fuchu Air Base, Japan, and Consultant to the U. S. Naval Hospital Oakland, California, visited this hospital. Dr. Robinson made ward rounds on the Pediatric Service, gave a very interesting and fascinating lecture on Pediatric Cardiac Abnormalities, and spent the entire afternoon in the Pediatric Cardiac Clinic. Staff medical officers were deeply impressed at the diagnostic skill and acumen and the compassionate understanding for patients which this distinguished physician demonstrated. The Commanding Officer and professional staff are deeply grateful to Dr. Robinson, who took the time from an over-burdened schedule to give so generously of his talent to this hospital.—Commanding Officer, U. S. Naval Hospital, Yokosuka.

BUMED NOTICE 6250

From:

From: Chief, Bureau of Medicine and Surgery

Subj: Two-week ACDUTRA for Inactive Duty MSC Entomologists, 26 July through 6 August 1965, at Atlanta, Georgia.

1. *Purpose.* To provide rapid and wide dissemination for an announcement of subject course.

2. *Background.* Five annual two-week training courses for reserve medical entomologists of the Armed Forces have been held at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland. Entomologists from all three of the armed services have attended. Classes usually consisted of about 30 individuals, and included eight quotas for Naval Reservists.

3. *Discussion.* This year, the Armed Forces Pest Control Board will sponsor the Sixth Annual Reserve Training Course for Medical Entomologists at the Training Branch, Communicable Disease Center, U. S. Public Health Service, Department of Health, Education and Welfare, Atlanta, Georgia 30333. It will replace the course formerly held at the U. S.

Naval Medical School, Bethesda. Billeting will be provided at Fort McPherson, Atlanta, Georgia, and U. S. Army bus transportation will be provided daily to the CDC Training Branch. The course will provide the regular two-week ACDUTRA credit for Naval Reservists.

4. *Action.* It is requested that, as funds for reserve training permit, reserve training requests be approved and that notification of approval by name be forwarded to the Executive Secretary, Armed Forces Pest Control Board, or from Code 7222, Bureau of Medicine and Surgery, Washington, D.C. 20390.

ILLINOIS SURGICAL DIVISION MEETING FEATURES NAVAL SPACE MEDICINE

Four Great Lakes Naval Hospital surgeons and Dietrich E. Beischer, Ph.D. of Pensacola, Florida's U. S. Naval School of Aviation Medicine, presented outstanding papers before participants in the second Illinois State Surgical Division Meeting on March 27, at Great Lakes.

SPACE MEDICINE

Dr. Beischer, head of the chemical sciences division at Pensacola, pointed out that, "The study of the gradual adaptation of man to a less demanding environment poses challenging tasks to aerospace medicine.

ABDOMINAL NEOPLASMS

LCDR W. J. Fouty, MC USN in his presentation, *Benign and Malignant Neoplasms of Liver in Infancy and Childhood*, discussed abdominal neoplasms in infancy and childhood. The paper included a classification of hepatic neoplasms and statistics on partial hepatectomies.

LCDR Francis E. Banich, MC USNR, speaking on *The Ligation of Bleeding Prolapsing Internal Hemorrhoids*, told the assembled surgeons, "In the military service we see many young men and women with mild to severe hemorrhoidal disease and a simple, inexpensive and effective mode of therapy was sought."

CDR J. V. Brown, MC USN, head of plastic surgery at Great Lakes Naval Hospital, reviewed the background of oxygen therapy, with special attention to hyperbaric oxygen.

LCDR D. W. Hopping, MC USN presented two cases in his discussion of *Surgery in Renal Hypertension*.

Following the scientific presentations, participating surgeons toured the hospital and Naval Medical Research Unit #4 at Great Lakes. Rear Adm. Frank P. Kreuz, MC USN, Commanding Officer, was the chairman of the event.—*Journal of the International College of Surgeons*, 43(6):23-24, June 1965.

HOSPITAL ACCREDITATION SURVEY

Yokosuka, Japan (CNFJ) May 3—Dr. Otto Arndal, surveyor for the Joint Commission on Accreditation of Hospitals (JCAH), made an accreditation survey of the Naval Hospital, U. S. Fleet Activities, Yokosuka, April 30.

The survey was to determine whether the hospital has maintained its eligibility for accreditation by the association.

The purpose of the JCAH is to improve the quality of patient care in hospitals. In order to do this they have established minimum standards of quality for patient care (called Basic Principles) and have invited all hospitals and physicians to meet or surpass these standards.

Accreditation may be granted for three years, for one year, or withheld. A three-year accreditation means the hospital meets minimum standards to a relatively high degree. Since 1957, when the Navy's overseas hospitals were first surveyed by the commission, the Yokosuka hospital has not failed to earn accreditation for a three-year period.

Receiving the 1965-68 accreditation approval for Naval Hospital, Yokosuka, was the hospital commanding officer, CAPT Edward P. Irons, USN.

Although accreditation is voluntary, it has become the symbol of patient safety. This distinction is due to JACH's standards which have evolved from years of observing the hospital practices which have proved consistent with high quality patient care.

The JACH was founded in 1952. It is made up of a Board of Commissioners representing four medical and health organizations. They are the American College of Surgeons, the American College of Physicians, the American Hospital Association and the American Medical Association.—Commander,

U. S. Naval Forces, Japan, Public Information office. FPO San Francisco 96662.

CHLORAMPHENICOL

A. Possible Prophylaxis Against Toxicity: Earlier this year Ingall et al. (*Clin-Alert* No 40, 1965) suggested that prophylactic phenylalanine therapy be considered as a possible means of minimizing the toxicity of chloramphenicol (Chloromycetin). The present observer is fearful that the Ingall report might be misconstrued and lead to the assumption that aplastic anemia will no longer limit the discriminate use of chloramphenicol if phenylalanine is also administered. This assumption is not justified at present. For one thing, phenylalanine inhibits the antibacterial effect of chloramphenicol in vitro, and this may also be true in vivo. Additionally, the observations made by Ingall et al. Concerned the regression of chloramphenicol-induced vacuoles in bone marrow cells during phenylalanine therapy. The relationship of vacuole formation to later development of more serious bone marrow depression is unknown. "Until more is known about the interaction between phenylalanine and chloramphenicol-induced aplastic anemia the risk of bone marrow depression caused by the the latter drug must remain a possibility."—Brown (Portland, Oregon), *New England J. M.* 272:752 (April 8), 1965.

B. Legal Action: A woman who developed aplastic anemia, a beard, and a lump on her neck after taking chloramphenicol has been awarded damages in the amount of \$180,000. The patient brought suit against the drug manufacturer and the doctor who prescribed the antibiotic. The doctor was exonerated on the basis of his testimony that he did not authorize prescription refills for chloramphenicol which the patient secured over a period of several weeks. A prior appellate court had earlier set aside a verdict for \$335,000 in this case. It has been announced that the latest decision will be appealed on the ground that the damage award (\$180,000) was inadequate.—*The Citation* 10(12):217 (Mar. 31), 1965, (*Clin-Alert*, No. 116, April 27, 1965.)

PREVENTIVE MEDICINE SECTION

SMALLPOX IN THE U. S. A.

WHO Wkly Epidem Rec 40(22): 286, 1965.

United States of America: Washington, D.C.
—One laboratory confirmed imported smallpox case has been notified on 28 May 1965. This case had been notified as a clinical case of chickenpox, possibly smallpox, on 25 May, and on 26 May, it was notified as a smallpox suspect case.

The patient is a 31-year-old resident of Ghana and had lived in the Accra area for some time before embarking at Accra on 6 May on Pan Am Flight No. 151 for New York. This flight began at Johannesburg and stopped at Lagos, Accra, Monrovia, Dakar and New York. The patient arrived in Washington, D. C. on 7 May. Her illness began on 16 May, an atypical rash developed on 19 May and she was isolated in hospital on 20 May.

The patient received an apparently successful primary vaccination in childhood. She was revaccinated on 12 April 1965, without apparent take. She has a valid international vaccination certificate.

Tracing of contacts had led to the identification of 1,000 contacts who have been placed on one of three categories of presumed risk.

The first category includes a total of 118 individuals who are known to have had direct contact with the patient since May 13. All of them have been located, vaccinated and placed under surveillance. These include the patient's husband and friends, taxicab and ambulance drivers, hospital personnel, personnel of the District of Columbia Department of Public Health and the Communicable Disease Center, and laundry workers handling potentially contaminated laundry.

The second category includes an additional 664 persons who have been identified as indirect contacts of the patient. These include other hospital patients on the same floor, patients recently discharged from that floor and visitors to the floor (before quarantine measures were instituted), medical and nursing staff not directly in contact with the patient, laundry workers, housekeepers and para-medical personnel who have been on the floor, and persons who were

in the hospital emergency room where the patient was first brought on 20 May. To date, 658 of these 664 persons have been vaccinated and placed under surveillance.

The third category consists of secondary contacts. This includes the families and close associates of the 118 persons who had direct contact with the patient. 246 persons have been identified, and among them, 244 have been located and vaccinated.

The surveillance of the direct contacts includes both daily temperature recording and clinical examination for 16 days following the last known contact or date of successful vaccination. Indirect and secondary contacts have been instructed to report any suspicious symptoms occurring during the first 16 days after the last possible contact. These are to be investigated immediately. All persons in these categories will be contacted at the close of this period to ascertain their well being.

As of 1 June at 16:00 no secondary cases, even suspect, had been observed.

It is recalled that under the provisions of the WHO International Sanitary Regulations health administrations do not have the right to consider Washington D. C. as a smallpox infected local area on the basis of this one imported smallpox case.

THE RUBELLA VIRUS

The Lancet, Annotations, II(7357): 455, 29 August 1964.

Rubella is endemic in a United States naval training center at Great Lakes, Ill., where the attack-rate approaches 100% in susceptible individuals. A recent virological study included 34 naval recruits in whom the clinical diagnosis was based on a characteristic rash, a leucocyte-count below 10,000 per c. mm., and throat cultures negative for streptococci. In addition, almost all patients had enlargement of occipital or posterior auricular lymph-glands.

Confirmation of the clinical diagnosis was sought by virus isolation and by the demonstration of a 4 fold or greater rise in neutralizing-antibody titers in convalescent sera (compared with sera in the

acute phase). The rubella agent was detected by its ability to interfere with a subsequent challenge infection by Echo virus type II in monolayer cultures of monkey kidney cells. The interfering agent presumably rubella virus, was sought in throat washings, rectal swabs, leucocytes acute-phase serum, and urine. It was isolated from throat washings in 25 (74%) of the 34 men and from rectal swabs in 8 (57%) of 14 patients. Whereas virus was isolated from the leucocytes of 2 of 15 patients tested, it was not detected in acute-phase serum from any of the 34 patients. Although nonspecific inclusion-bearing cells were observed by Bolande's method in stained smears of urinary sediment in nearly half the specimens examined, virus was never isolated from urine. Throat washings proved the most consistently fruitful source of virus, particularly when Hank's balanced salt solutions with 0.4% bovine-plasma albumin was used as gargle fluid.

The sources of virus provide data of epidemiological interest. Virus was found in the throat up to 4 days after the rash appeared; it might persist longer, but virus cultures were not collected beyond that time. The detection of virus in leucocytes raises the possibility of blood-borne dissemination. The presence of virus in rectal swabs suggests either that it is swallowed virus or a virus that has proliferated in the mucosa of the lower gastrointestinal tract; in either event, fecal dissemination is possible. These modes of spread will doubtless be studied in future epidemics.

STRAW ITCH MITE DERMATITIS

Va Dept of Hlth, Bureau of Epidemiology, Morbidity Rpt for week ended 20 Feb 1965.

Outbreaks of straw itch mite dermatitis are likely to be recognized when the histories of the affected indicate association with straw, hay, grasses, or the handling of grains. When the source of this parasite is an unsuspected reservoir, the causative agent, straw itch mite, *Pyemotes ventricosus*, may not be found even after the presenting eruption is suspected to be the result of insect bites. A previously unsuspected reservoir may be found in urban as well as rural areas, i.e., massive infestation of the furniture beetle, *Anobium punctatum*, in the floor joists of a house. With the aid of a magnifying lense, the almost microscopic mite may be seen scurrying about the floor. This is particularly true when the adult beetles emerge, leave the wood, and the mites migrate in search of new hosts. The mites may be

controlled by treating the floors with 2% deodorized malathion emulsion.

The typical lesion resulting from a bite of *Pyemotes ventricosus* is an urticarial papule surmounted by a pinhead sized vesicle. The clear fluid becomes purulent in a short time if it is not excoriated. There is intense pruritus associated with these bites and frequently, secondary traumatized lesions predominate. The majority of the lesions are found on the trunk but all parts of the body may be affected with the possible exception of the face, hands, feet and mucous membranes. The morphology and distribution of these lesions are unique and make differentiation from other entities such as urticaria, erythema multiforme, drug eruptions, and varicella possible. A central hemorrhagic punctum is seen frequently and following resolution of the acute phase ecchymoses and brownish pigmentation, probably hemosiderin, remain.

THE FIFTH SEASON: NEW ORLEANS ASTHMA

*Los Angeles County Hlth Index,
1st Rpt Week, ending 9 Jan 1965.*

In recent years New Orleans, La. has come to know a fifth season; the asthma season. Each fall, particularly in Oct. and Nov., Charity Hospital admits several dozen to several hundred patients to the emergency clinic during each 24 hours because of asthma. These are in excess of the normal or expected asthma patient load. Uncounted are those patients who were treated by their family doctors or who failed to seek medical help. All, however, are part of the same medical phenomenon—*New Orleans asthma*.

During the past 2 decades nationwide attention has been focused on specific, nonrecurrent, community-wide episodes of acute breathing difficulty, such as the Donora, Penn. incident; recurrent catastrophes in London, England, and continuing problems in Los Angeles, Calif. Recently, episodes of recurrent asthma have been noted in small geographic areas in persons with no previous asthmatic history; these episodes also have been attributed to air pollutants. The best known example of this phenomenon is called "Tokyo-Yokohama asthma," which confronts physicians serving with the American Armed Forces in Japan. Geographic relocation of patients with Tokyo-Yokohama asthma results in disappearance of asthmatic symptoms in most subjects. However, some U. S. personnel repatriated because of Tokyo-Yokohama asthma have continu-

ing pulmonary disability, which in some cases continues to progress even after returning to the United States. The cause or causes of Tokyo-Yokohama asthma have not been identified, although heavy air pollution from neighboring industrial sources is thought to be an important factor in the genesis of this condition.

New Orleans asthma has prompted much speculation regarding possible causes. At some time, just about every industrial operation has been suspect. Indigenous insects, pollens, grasses, trees and moles have been suggested as the offending agents. Observations by many patients that asthmatic attacks could be predicted by the combination of time of year, climatic conditions, and wind direction were valuable clues in the search for the offending agents. A great amount of data has been accumulated in continuing investigation by the Tulane Medical School, New Orleans, and the U. S. Public Health Service Division of Air Pollution. One airborne substance found to be a silica-containing particle which is identified with incompletely burned materials such as those arising from city dumps, was shown to have some vague statistical relationship to outbreaks of asthma. An antigen for skin testing was prepared from the silica-containing particles. Results of skin testing showed that 1 in 5 of the controls, somewhat more than half of the conventional asthma-hay fever group, and almost 90% of the New Orleans asthma patients had positive responses.

Air sampling stations continue to produce evidence of still another possible significant pollutant. The latter was found to be most heavily concentrated near an industrial operation devoted primarily to the loading and unloading of grain from cargo ships. A new skin testing program was begun with an antigen prepared from the dust arising from these operations. The results of this as yet incomplete phase of the program are even more impressive than those of the silica particle study.

Additional antigen suspects are being studied, epidemiologic and meteorologic investigations continue, and clinical studies of various groups of patients are being pursued. When these are completed, it is hoped that all of the different causes of New Orleans asthma will be identified and the rather unusual medical problems of New Orleans' "fifth season" will have been solved.

REFERENCE

1. Walsh, John J. and Derbes, Vincent J. The fifth season: New Orleans asthma. Bulletin of National Tuberculosis Association. 50 (December): 8, 1964.

STUDY FINDS ASTHMA INCREASE AMONG NEGROES

This Week in Public Hlth, Mass Dept of Public Hlth 14(7): 61, 15 Feb 1965.

Negroes in New York City, and possibly in other areas, have apparently experienced a marked and mysterious increase in asthma attacks in the last few years. This conclusion, the result of a statistical study of asthma victims appearing at hospitals and other institutions in the city was reported by a member of a team at the Albert Einstein Medical College. The increase may be a result of some as yet unknown component of air pollution in Negro areas. It may be caused by emotional forces, since asthma attacks are known to be closely related to emotional states. Or some unsuspected agent may be at work.

Excluding cases of injury resulting from trauma or admittances for childbirth, about 1/3 of the patients who appeared at the Harlem Hospital emergency room for treatment recently were diagnosed as suffering from asthma. Under conditions believed to be statistically similar 13 years ago, only 3 out of each 100 emergency room visits were attributed to asthma.

A study of ties between air pollution and meteorology and statistics on morbidity and mortality began 13 years ago under Dr. Leonard Greenburg. Associated with him are Frank Field, a meteorologist connected with the National Broadcasting Company, and Dr. Carl Erhardt, Director of the Bureau of Records and Statistics of the New York City Health Department. Reports are received on emergency treatments from a number of institutions, including 5 hospitals. The group has found that asthma attacks generally increase in Sept., Oct. and Nov. in all the reporting institutions, but the increase has been most marked in the emergency room at Harlem Hospital, which serves a Negro population. Dr. Greenburg has applied to the Health Research Council for a grant to support further investigation.

VACCINATION AGAINST EXPERIMENTAL CHAGAS' DISEASE

Kagan, Dr. Irving G., Vector Control Briefs, Issue No. 14, p. 9-10, Feb 1965.

Dr. F. C. Goble reported at the 39th Annual Meeting of the American Society of Parasitologists held in Boulder, Colorado, that a vaccine prepared from killed culture forms of *Trypanosoma cruzi* protected mice against a lethal challenge infection. Pre-

vious studies by Johnson and Neal (1963) showed that mice could be protected with a vaccine prepared from culture forms of *T. cruzi* which were disrupted by freezing and thawing and administered with adjuvants. In the present study a minimum of 300 million culture forms per injection, disrupted by pressure, sonic oscillation or ballotini in a Shockman apparatus were found to be effective as vaccines when administered without adjuvants. Vaccines prepared by sonic oscillation are improved when thiol agents such as glutathione, cysteine, or mercapto-ethanol are added. Vaccines stored at -70° C retain potency for 3 months. Prior to the studies by Johnson and Neal (1963) and Goble, et al., (1964), vaccines prepared by chemical means were ineffective in protecting mice against a lethal challenge.

The demonstration that an effective vaccine can be prepared by physical methods of disrupting culture forms of *T. cruzi* which will protect mice for at least 4 months (the longest interval tested) presages a useful preparation which may have practical application in the control of Chagas' disease in man.

REFERENCES

1. Goble, F. C., Boyd, J. L., Grimm-Wehner, M. and Konrath, M.: Vaccination against experimental Chagas' disease with homogenates of culture forms of *Trypanosoma cruzi*. *J. Parasitol.* (Suppl.) 50: 19, 1964.
2. Johnson, P. and Neal, R. A.: Protective effect of killed trypanosome vaccine with incorporated adjuvants. *Nature* 200: 83, 1963.

SNAKES OF TAIWAN

Trop Diseases Bull., 61(11): 1186-1187, Nov 1964, Book Reviews.

"Snakes of Taiwan" is an excellent monograph written to provide interested laymen or doctors needing identification for the proper treatment of snakebite with the means of recognizing the snakes of Taiwan. It achieves its purpose admirably by simple descriptions and, even more so, by superb colored photographs. Emphasis is laid on characteristics common to adult snakes while living or shortly after death, particularly the features which a layman without any anatomical knowledge can determine by his own eyes or by the use of an ordinary hand lens. Descriptions are arranged so that the first paragraph includes impressions likely to be gained in the first glance at the snake (size, shape, coloration and so on) and this is followed by more detailed description of the head and the rest of the body. Likewise, there is a colored picture of the whole snake and a close-shot of the head. In the Introduction, a simple and well-illustrated account is given of the fangs and of the basic descriptive criteria used in identification. There is no Key for identifica-

tion; as there are not many snakes, a Key is probably unnecessary, particularly in view of the excellent photographs which are an outstanding feature.

In the ensuing 67 pages, descriptions and photographs of 37 snakes are given.

For the convenience of the reader, the more salient features are italicized. In each case the description is followed by notes on the distribution of the species and on the habitats and habits. 25 of the 37 are nonpoisonous snakes: the 12 poisonous species are the Taiwan banded krait (*Bungarus multicinctus*), the Chinese cobra (*Naja naja*), 2 coral snakes (*Calliophis maclellandi* and *Hemibungarus sauteri*), 4 sea-snakes (*Laticauda colubrina*, *L. semifasciata*, *Hydrophis cyanocinctus* and *Pelamis platurus*) and 4 vipers (*Vipera russelli*, the 100-pacer—*Agkistrodon acutus*, the Bamboo viper—*Trimeresurus stejnegeri* and the Habu, *T. mucrosquamatus*). The order of frequency with which these poisonous snakes bite human beings in Taiwan is given as *T. stejnegeri*, *T. mucrosquamatus*, *B. multicinctus*, *N. naja* and *A. acutus*. Although rated fifth in the number of bites to man, *A. acutus* bites carry the highest mortality.

The monograph finishes with a humorous account on the cultural and economic importance of snakes in Taiwan. A thriving tourist industry derives from ornamental snake skins used for shoes, handbags, belts and neckties. Snake soup is a standard local dish selling at 10-25 cents per bowl: it is credited with unusual nutritional properties. The gall bladder, removed immediately after the snake is killed, is swallowed whole with a glass of rice wine: taken together with refined snake oil, it is "good for pneumonia, insures virility, improves vision and brightens the eyes" (as proclaimed in the translated advertisement of a Taipei snake shop). From 10,000 to 15,000 living snakes are exported to Hong Kong each month: local consumption is much higher.

It is understood that a number of copies of "Snakes of Taiwan" are available from the Bureau of Medicine and Surgery, Preventive Medicine Division, Code 72, Washington, D. C. 20390.

HEALTH PROBLEMS OF MONGOLIA

WHO Press, Special Feature, April 1965.

The People's Republic of Mongolia, a land-locked mountain plateau in the heart of the Asian land mass, has a pattern of life determined almost solely by its physical features and climatic conditions.

The country, consisting of a 5000-foot plateau

with peaks towering as high as 15,000 feet, covers 600,000 square miles. This is an area almost as large as Afghanistan, Burma, Ceylon and Nepal put together but the people who inhabit it number merely a million.

The economy is largely pastoral; for their livelihood most of the people depend on a population of 24 million domestic animals.

Three quarters of the people of Mongolia live in rural areas, moving their portable felt-covered houses ("gers") as they follow their herds of sheep, goats, cows, horses, camels, and yaks in search of pasturage.

This is why Mongolia is so concerned about brucellosis and other zoonoses. These diseases menace not only the health of the people but also the basic economy of the country.

Investigations among children below ten and in the 10-20 age group showed that there exists a very high rate of exposure of children to brucellosis.

In a serological survey made among animals, not only was there infection among cows, sheep, goats, and yaks, but the serum agglutination test on sera from appreciable numbers of mares and camels was found positive. This finding is of great significance, since the mare plays a very important part in the life and especially the nutrition of the people.

Tuberculosis is another of the country's major health problems. There is a control service which has developed from a national tuberculosis campaign. The campaign consisted of a tuberculosis survey, BCG vaccinations, mass case-finding by X-ray and clinical examination, chemotherapy of defected cases, the setting up of dispensaries and the training of the necessary personnel.

There are also helminthic (caused by intestinal worms) diseases in man and animals and diarrhoeal diseases, which are known to cause much infant and child morbidity and mortality. Viral hepatitis reached epidemic proportions in 1962 and is still responsible for very high morbidity. Diphtheria continues to spread, despite an immunization program. Paralytic poliomyelitis first appeared in the country in 1962, and there was a sharp outbreak in 1963, especially in Ulan Bator and in some of the main towns of the aimaks: some mass vaccination with oral live polio-virus vaccine has been carried out.

Mongolia has, per 10,000 population, 12 doctors (one doctor to 903 people), 18 feldshers, 33 nurses, and 99 hospital beds (one bed to 103 people) 60% of the beds being in rural areas. The State Institute

of Medicine has 1,150 students in training, and there are 1,220 in the Training School for Health Personnel. The Government spends about 10% of the Total budget on health services and all medical and hospital treatment is given free of charge.

It must, of course, be borne in mind that the very favorable physician patient ratio does not solve the problem of communication arising from the great distances between health centers at the present time and the scattered distribution of the population.

MANATEES (SEA COWS) FOR THE CONTROL OF AQUATIC WEEDS IN FLORIDA CANALS

Gillespie, Richard W., Aedes aegypti Eradication Project, West Palm Beach, Fla., Vector Control Briefs, Issue No. 14, pp. 10-11, Feb 1965.

The Florida Flood-Control District currently manages around 1,300 miles of canals. Because of the year-round growing season in Florida, aquatic weeds are a problem there.

Flood-Control District personnel consulted various authorities including Universities, mammalogists, Federal, State and local Government, and museum curators regarding the feasibility of using manatees to eat the canals clear of aquatic weeds and thus make their job much easier and cheaper.

The results indicate that the manatee may provide a realistic means of weed control in the Florida canals. Using Grant funds, the Florida Atlantic University and the Central and Southern Florida Flood Control Districts entered into a pilot study placing the manatees in 3 half-mile-long canals in Broward County where weed growth was typical. Some of the questions for which answers are being sought are: How many square miles of weeds can a manatee control? What is the rate of reproduction of the mammal? Are diet supplements needed? Will manatees mate and breed under these conditions? What is the length of the gestation period?

No harmful side effects of the manatees' presence are expected. The manatee has no apparent enemies except man, and it is strictly a vegetarian that does not harm any other creatures.

Thus far, 5 manatees, 4 females and 1 male, ranging in size from 337 pounds to 2,170 pounds, have been netted and transplanted into canals. Between 7 May and late July of 1964, the 5 manatees ate most of the weeds in the half-mile test sectors. Dr. Peter Sgueros, the scientist in charge, from the Florida Atlantic University, checks the manatees regu-

larly. He has observed that sea cows spend most of their time eating.

Manatees are very susceptible to cold weather and develop bronchial pneumonia when exposed to temperatures around 32°F. For this reason an underwater heating device is being considered in the event

of cold spells in this semi-tropical climate.

The results of this interesting study are being eagerly awaited, not only by the flood-control people but by many mosquito-control units as well. Eliminating the weeds in canals will undoubtedly eliminate many of the *Mansonia*-type mosquitoes.

DEPARTMENT OF THE NAVY

U. S. NAVAL MEDICAL SCHOOL
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND 20014

POSTAGE AND FEES PAID
NAVY DEPARTMENT

OFFICIAL BUSINESS

PERMIT NO. 1048

LIBRARIAN
LIBRARY OF THE OFFICE OF THE SURGEON
ROOM 2611 MAIN NAVY
18TH & CONSTITUTION
WASHINGTON 25, D. C.

GM
GENERAL
U.S. ARMY

C 7-19-5